R. Par

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7 p 8

PRACTICAL SURGERY
ILLUSTRATED and IMPROVED:

BEING

CHIRURGICAL OBSERVATIONS,

WITH

REMARKS,

UPON THE

Moſt extraordinary CASES, CURES,
and DISSECTIONS,

MADE AT

St. *Thomas*'s Hoſpital, *Southwark.*

By WILLIAM BECKETT, Surgeon, F. R. S.

CHIRURGIA *eſt Pars Medicinæ*; *Manuum Opera externa*;
mederi docet Affectibus Corporis humani externis.

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4

MVSEVM
BRITAN
NICVM

To the MUCH-HONOURED

Sir HANS SLOANE, Bart. M. D.

The very worthy PRESIDENT

OF THE

ROYAL SOCIETY,

AND TO THAT

ILLUSTRIOUS BODY

(Of which, for ſome Time paſt, I have been
a Moſt Unworthy MEMBER,)

THESE

OBSERVATIONS

ARE ADDRESSED,

And ſubmitted to their CANDOUR,

BY

Their Devoted Servant,

4GG

WILLIAM BECKETT.

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CHIRURGICAL
OBSERVATIONS
By
W. BECKETT
F.R.S.
Fig. I.
R. Parr Sculp

CHIRURGICAL OBSERVATIONS MADE AT St. *THOMAS's* Hoſpital.

OBSERVATION I.

Of a Fractured Skull.

A MAN of about 36 Years of Age, received a Blow on his Head with a Hammer, by which he immediately fell to the Ground; this was ſucceded by Vomiting, Loſs of Sight, *Vertigo*, and *Deliquium:* The Head being ſhaved and examined, a Crucial Inciſion was made through the Teguments; which being removed, a Piece of the ſuperior Part of the right *Bregma* was found ſeparated, one Side of it being depreſſed conſiderably below the Surface of the *Cranium*; the Aſperities of which depreſſed-Part, ſeemed to preſs lightly on the *Dura Mater*. The *Hemorrhage* which attended the Wound was pretty conſiderable, for which Reaſon it was thought requiſite to dreſs it with Doſſils of dry Lint; which by obliging the Sides of the divided Arteries to be contiguous, infallibly put a Stop to the Effuſion of Blood; over which was applied a Plaiſter, with a Compreſs, and the Bandage called the great Cap. *V. S.* was at that Time omitted, by Reaſon the Quantity loſt by the Wound, ſeemed to be as much as the Conſtitution of the Patient would allow of: However a Clyſter was that Night adminiſtered. The next Morning the Patient being ſeated commodiouſly in his Bed (and a Chafing-Diſh of Coals provided to correct the Temperature of the Air) the Dreſſings were removed, and the Wound cleanſed; then a ſmall *Levatory* being introduced under the depreſſed Side of the fractured Piece, by elevating the Inſtrument, it was extracted. A ſmall Quantity of Blood, was lodged on the *Dura Mater*, which was abſorbed by an armed Probe; after which a *Sindon* was dipped in a ſpirituous Tincture, and introduced between the *Cranium* and *Dura Mater*, which by its being ſo commodiouſly applied, was capable of preventing the *Dura Mater* from being pricked or torn by any Aſperities which might probably remain at the Bottom of the inferior Table. Over this was applied a dry ſoft Pledget of Lint, with which the diveſted *Bone* was likewiſe covered; the Lips of the Wound were dreſſed with a Digeſtive, compoſed of *Terebinth. Venet. cum Vitel. Ovor.* Over which was applied Plaiſter, Compreſs, and Bandage, as before. The Patient had a ſmall Fever, which the 3d Day conſiderably increaſed; at which Time he was ſeized with an Inflammation of his Eyes and Eye-lids. That Night the Clyſters were repeated, and

Internals given as Occaſion required. The Inflammation of his Eyes and Eye-lids continued till the Lips of the Wound were well digeſted; at which Time the Fever likewiſe terminated: The 6th Day ſome ſmall Particles of Fleſh began to riſe from the *Dura Mater*, in the Form of little Grains, which in a few Days increaſed very conſiderably; ſo that the Surgeon was neceſſitated to have Recourſe to a Tincture of Aloes, which by its ſpirituous Parts, fortified the relaxed Extremities of the Veſſels, corrected the Laxity of the Fleſh, and gave it a good Conſiſtence. The Bone was dreſſed with *Tinct. Euphorb.* which in about 40 Days procured an Exfoliation; after which the Dreſſing conſiſted of a Decoction of Vulnerary Plants, with a ſmall Addition of *Mel. Com.* and *S. V.* With this it was incarned, and afterwards cicatrized with ſome of the common Epulotics. During the Patient's Indiſpoſition, he was confined to an exact Regimen.

The Remiſneſs of ſome Perſons in regulating this important Circumſtance, oftentimes, gives original to a Train of miſchievous Accidents. It was ſome Time before the *Callus* arrived to a ſufficient Degree of Hardneſs to reſiſt external Injuries; for a ſmall Compreſs on the Part put the Perſon to violent Pain.

REMARKS.

TO explain the Cauſe of the Perſon's Falling to the Ground immediately on the Reception of the Blow, we ought to obſerve, that the Blow cauſed a violent Commotion of the whole Brain, and ſo conſequently put the Spirits into a great Confuſion and Diſorder; which making irregular Incurſions into ſeveral Parts of the Body, without the Direction of the Will, could not be confined to the Nerves, whoſe Office it was to diſtribute them into thoſe Muſcles that keep the Body in an erect Poſture; for which Reaſon the Machine muſt unavoidably fall to the Ground. To have an Idea of the Cauſe of the Vomiting, it may be neceſſary we obſerve, that when either of thoſe Parts, whoſe Nerves entertain a mutual Commerce, is any Way diſordered; if the other is at the ſame Time affected, it is ſaid to ſuffer by Conſent: Thus in a large Wound of the Head we frequently obſerve a Vomiting to enſue, which is commonly uſhered in by Anxiety of the Heart, Swimming of the Head, *&c.* Now, if the Fibres of the Stomach are irritated by any communicated Diſorder, Crouds of Spirits are ſummoned into the affected Part, upon whoſe Arrival the Stomach contracts itſelf, and immediately diſcharges its Contents. It was the great Sympathy between the Heart, Head, and Stomach, (by Reaſon of their Complication of Nerves) which induced *Helmont* to believe the Soul had its Seat in the upper Orifice. *Etmuller* endeavours to give us a Reaſon why the Spirits and the Stomach do ſo ſenſibly affect one another, which he ſuppoſes to be this: That the Mouth of the Stomach is the firſt Part of all the Body which receives any ſenſible Impreſſion in the Womb, for ſo much as all Alterations in the *Embryo* muſt be produced by the Nouriſhment conveyed to the Stomach: This (ſays he) eſtabliſhes an early Correſpondence betwixt it and the Spirits, and lays the laſting Foundation for their future Intimacy.

To give a rational Account of the Loſs of Sight, we need only reflect on the Hurry and Diſorder of the Spirits, which flying to and fro in an interrupted Motion, left thoſe Nerves which ſhould have conveyed them to the proper Organs, to have rendered them capable of being influenced by external Objects. The *Vertigo* probably proceeded from the irregular Motion of the Spirits, which wheeling round the Optic Nerve, made ſuch Impreſſions on the *Retina*, as an external Object, in ſuch Motion, is wont to produce. The Explanation of the Cauſe of the *Deliquium*, requires us to make ſome Remarks on the diſorderly Motion of the Spirits, which inſtead of having Recourſe to the Heart to rule its Motion, were hurried away ſometimes to this Part, ſometimes to the other, in an interrupted Courſe;

by which Means the Heart was deprived of their due Influx, its Fibres were uncapable of Contraction; for which Reaſon the Courſe of the Blood muſt neceſſarily be ſuſpended; the Parts be deprived of thoſe invigorating Particles which were wont to animate them; and the Faculties of the Soul for ſome Time extinguiſhed. The Inflammation of the Eyes and Eye-lids proceeded from the Inflammation of the *Pericranium*; for the Membranes which inveſt the internal Parts of the Eye-lids, and form the external Tunicles of the Eyes, are Productions of it. *Malpighius* is of Opinion, that the *Funguſſes* which arise in Wounds of the Brain or *Dura Mater*, derive their Original from a Hurt of ſome of thoſe Glandules of which the Cortical Part of the Brain is composed: Others conceive they are formed out of an oleaginous Subſtance which abounds in the Brain: However, when theſe Inconveniencies ariſe, the Artiſt endeavours to ſuppreſs them by moderate Compreſſure, or the moſt gentle Catheretics.

OBSERVATION II.

Of a Diſtortion of Two of the Vertebræ *of the Back.*

A YOUNG Man of about 21 Years of Age, endeavouring to lift a heavy Weight from the Ground, diſtorted two of the *Vertebræ* of his Back towards the Right-ſide externally, ſo that their acute Proceſſes formed a ſmall Tumour on the Part. It was obſerved, that at the ſame Inſtant of Time the *Vertebræ* ſlipped out of their Places, the Perſon fell proſtrate on the Ground; nor was he able, after he had lain a conſiderable Time, to riſe without Aſſiſtance. He had been about 6 Months under the Care of a Sea-Surgeon, who had made uſe of external Applications to no Purpoſe, and during the firſt 3 Months, had wholly confined him to his Bed; where, by Reaſon of his preſent Diſorder, he was obliged to lie conſtantly in the ſame Poſture, with his Body contracted; by which Means the two *Vertebræ*, which were contiguous to thoſe which were forced from their natural Poſition, were diſtorted. Soon after the Expiration of the 6 Months, he was committed to the Care of an experienced Surgeon, who ordered the Patient every other Morning to be ſuſpended by the Neck, by Means of ſuch another Machine as *A. Nuck* deſcribes by the Name of *Torques* in his *Operationes & Experimenta Chirurgica*; in which Tract he gives us its Figure and Uſe, with its Deſcription. * Before the Patient ſwung, his Back was conſtantly anointed with the following Liniment ℞. *Ung. Dialth. Nervin. ana* ʒ. *ii. Ol. Lumbric. Camom. ana* ℥ *ſs. m.* While the Body of the Patient was kept extended by Means of the Swing, a Pair of Boddice was laced pretty-ſtrait-on, to the back Part of which there were affixed two ſmall Bars of Iron, about half a Foot in Length, which were kept about an Inch aſunder, by Means of a Bar at each End: Theſe were quilted and covered with ſoft Leather; the two long Bars were placed on each Side the acute Proceſſes of the diſtorted *Vertebræ*, and made a conſiderable Compreſſure on the lateral Proceſſes. Theſe Means being every other Day reiterated, in about a Month's Time the Patient reaſſumed his former erect Stature, and the *Vertebræ* were reinſtated in their proper Places.

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* Page 86. Edit. *Lugd. Bat.* 1692. 8vo. See FIG. I. in our PLATE.

From hence we may give a Reaſon why the Liver is more diſpoſed to impoſtumate on ſuch an Occaſion than any other Part.

RE-

REMARKS.

TO have an exact Idea of a Diſtortion of the *Vertebræ*, which occaſions a Gibboſity, it may be neceſſary we examine their Structure, Articulation, &c. when they are in their natural Poſition. Now each *Vertebra*, by Anatomiſts, is diſtinguiſhed into two Parts, its Body and Proceſſes; the Subſtance of the former is more ſoft and ſpongious than the latter, which is hard and firm; its Body is convex forward, and ſomewhat concave behind; its upper and lower Sides are plain, each of which is covered with a Cartilage, that is conſiderably thicker forward than backward; by which Contrivance we bend our Bodies forward with ſo much leſs Difficulty than backwards or Side-ways: Each *Vertebra* has 3 Sorts of Proceſſes proceeding from the concave Part of its Body, 2 tranſverſe, 4 oblique, and 1 poſterior or acute. The Proceſſes, with the concave Part of the *Vertebræ*, form a Channel to contain the ſpinal Marrow, which by this Means is defended from any Injuries that might otherwiſe accrue from the various Motions of the *Vertebræ*. Their Articulation conſiſts in the lodging the Extremities of the oblique aſcending Proceſſes of each inferior *Vertebra*, in the hollowed Part of the Extremitiy of the deſcending oblique Proceſs of each ſuperior *Vertebra*: Beſides this, they are tied together by a firm ſtrong Ligament, which reaches from the firſt *Vertebra* of the Neck to the *Os Sacrum.* This brief Deſcription of the Form and Poſture of the *Vertebræ*, Proceſſes, and Cartilages, may ſerve to inform us how the *Vertebræ* are capable of being diſtorted externally or internally. Dr. *Keill* informs us, that if the *Vertebræ* of the Back ſtick out backward, the Cartilages which are between the *Vertebræ* are very thin and hard forwards, but conſiderably thick behind, where the oblique Proceſſes of the ſuperior and inferior *Vertebræ* are at a conſiderable Diſtance from one another, which Diſtance fills up with a viſcous Subſtance: This we frequently obſerve in infirm Children, where the Ligaments which are united to the back Part of the *Vertebræ*, are often ſo relaxed as to be altogether incapable of confining them in their natural Poſition; for which Reaſon the Hinder-Part of the Cartilages begin gradually to increaſe in Thickneſs; this obliging the ſame Part of the *Vertebræ* to recede conſiderably one from the other, muſt neceſſarily occaſion ſuch a Convexity of the Spine as is obſerved, which moſt frequently inclines a little to one Side: So likewiſe in the Caſe related in the preceding Hiſtory, the *Vertebræ* being diſtorted, and the Body for a conſiderable Time remaining contracted, the Cartilages on their Fore-Part were ſo compreſſed, that they became thin, cloſe, and compact; at the ſame Time the Hinder-Part of the Cartilages ſuffering no Compreſſure, were expanded ed to a conſiderable Thickneſs, from whence the Gibboſity. Swinging a Perſon who labours under one of theſe Diſorders, ſeems a very commodious Method to reſtore the *Vertebræ* and Cartilages to their natural State; for while the Patient remains ſuſpended, the Body aſſumes an erect Poſture, the oblique Proceſſes of the ſuperior and inferior *Vertebræ* are brought nearer to each other, and thoſe contracted Muſcles which aſſiſted in the Extruſion of the *Vertebræ*, are almoſt equally extended with their relaxed antagoniſt Muſcles, which gave way to the Diſtortion of the *Vertebræ*. It is obſervable that this ſort of Diſtortion which proceeds from a Relaxation of the Ligaments, oftentimes becomes an inveterate Companion, and in an infirm Conſtitution, frequently propagates itſelf by an hereditary Succeſſion, eſpecially among Women; altho' it is an intricate Matter to underſtand how ſuch a Diſpoſition of ſome particular Part of the Parent's Body, which rendered him or her obnoxious to any particular Diſtemper, may be communicated to the ſame Part of the *Fœtus*, and render it liable to the ſame Diſorder: But in this Caſe the Deformity commencing from the Womb, the *Vertebræ* being at that Time ſoft and cartilaginous, they have been obſerved to partake of the ſame in Equality as the Cartilages.

Thoſe Diſtortions of the *Vertebræ* which are inward, we conceive cannot happen unleſs they are compreſſed or forced from their true Poſition by ſome external Body. An Inſtance of this we ſaw in a Man of about 35 Years of Age, who by a Fall on a Piece of Timber diſtorted one of the *Vertebræ* of his Loins internally, which was ſucceeded by a Stupor of his Thighs and Legs, and an involuntary Emiſſion of Urine, that obliged him conſtantly to wear a Bladder commodiouſly faſtened to his *Penis*, to receive his Water.

OBSERVATION III.

Of a Fractured-Arm which never re-united.

A GENTLEMAN's Servant, aged about 23, of a good Habit of Body, had the *Os Humeri* of his Right-Arm fractured by the Kick of a Horſe. A Bone-ſetter being immediately ſent for, after a violent Extenſion reduced the fractured Bone, made a ſtrait Bandage on the Part, and placed the Patient in Bed; after which he opened a Vein, and let him bleed freely, notwithſtanding by an unhappy Accident he had loſt a conſiderable Quantity a few Days before: Then he obliged him to be content with a very ſpare Diet, which conſiſted of Water-gruel, Milk-porridge, *&c.* all the Time he kept his Bed, which was near 3 Weeks: At the End of which the Patient was ſo extremely weak, that he was ſcarce able to walk without Support: However, by reaſon of the re-iterated favourable Prognoſtics which were frequently given by the Bone-ſetter, the Patient continued under his Care at leaſt 3 Quarters of a Year; at the End of which Time he was committed to the Care of an experienced Surgeon, who on a ſtrict Examination of the Part, diſcovered the Bones to be as perfectly diſunited as ever. During the Time the Patient continued under his Care, there were Catagmatic Plaiſters applied over the fractured Member, which were ſuſtained with a moderately ſtrait Bandage. The Patient was allowed a free Liberty in Diet, which conſiſted of viſcous Meats, as Neats-Feet, Calves-Feet, Broths of Beef, Mutton, and Veal, and every Night and Morning was ordered to take ʒi. of *Lap. Oſteocol.* in a proper Vehicle; but the Method proved unſucceſsful, for the Bone continued diſunited, which obliged the Perſon to keep his uſeleſs Arm conſtantly ſuſpended in a Scarf.

REMARKS.

IT may be neceſſary, before we endeavour the Explanation of the Cauſe why the fractured Bone never re-united, to obſerve, that all Re-unions which are made in Nature, are effected by one and the ſame Material, which we term nutritious Juice: This is imparted to all the Parts of the Body, by the arterious Channels. It is the Particles of this Liquor (whoſe Subſtance is homogeneous) which by paſſing through the ſmall Tubes are ſo modified, as to conſtitute a Body like that through whoſe Pores it paſſed; ſo that according to the Configuration of the Pores, it is formed into Fleſh, Bone, Tendon, *&c.* This being premiſed, we may reaſonably conclude, that whatever is capable of conſiderably diminiſhing the Quantity of this nutritious Juice, and preventing its freſh Recruits, may undoubtedly diſengage the Deſign of Nature as to her Re-unions. Thus in the preceding Hiſtory, the Loſs of ſuch a vaſt Quantity of Blood, and the denying the Patient a competent Suſtenance to repair that Loſs, was in all Probability the real Cauſe the Bone never re-united. Authors have eſtabliſhed other Cauſes, which in a great Meaſure prevent the Union of fractured Bones. As 1ſt, in old Age the *Callus* ſeems difficultly generated in theſe, (ſay they) by Reaſon the primogenial Moiſture is almoſt exſiccated; or if the Blood recedes from its due Temperament, and aſſumes a groſs and viſcous Quality, (as is frequent in old People) the Patient may be liable to the ſame Misfortune; for in ſuch a Caſe it is impoſſible the Blood ſhould paſs freely through thoſe imperceptible Arteries which are diſtributed through the Bones, ſo that the nutritious Juice being emitted from the divided Bone in a ſmall Quantity, it cannot produce a *Callus* ſufficient to effect a Union. 2dly, In pregnant Women the *Callus* is not ſo ſoon generated as in other Perſons, becauſe great Part of the nutritious Juice which ſhould have aſſiſted in the Re-union of the Bones, is employed in perfecting the *Fœtus.* 3dly, The too long deferring the Reduction of the Bone is a great Cauſe, becauſe the nutritious Juice paſſing through the ſmall Channels in the Bone, in a ſhort Time concretes about the divided Extremities; and ſo conſequently obſtructs thoſe ſmall Orifices, by which Means a Supply of proper Matter for forming a *Callus* is altogether prevented. Moſt Authors (according to the Authority of *Galen*) allow a greater Liberty in Diet in Fractures, than is uſual when they do not labour under ſuch Diſorders. *At quo Tempore Callus gignitur* (ſays he) *nutriendum Corpus eſt Cibis Boni Succi & qui multum nutriant*; and thoſe Meats he ſays muſt be viſcous: But *Hildanus* and ſome others highly cenſure ſuch Practice, and reject the Uſe of all viſcous Meats, by Reaſon (ſay they) that "they create Obſtructions in the *Viſcera*, and "give Original to ſeveral other Diſorders;" but by their conſtant Uſe in the Patient mentioned in the preceding Hiſtory, we never obſerved the leaſt ill Effect.

OBSERVATION IV.

Of an Atrophy of the Thigh, Leg, and Foot.

A YOUTH of about 18 Years of Age, had for a conſiderable Time laboured under an imperfect Luxation of his left Hip, with an Atrophy of the Thigh, Leg, and Foot, of the ſame Side; for the Removal of which Inconveniencies he had for a Time patiently endured the various Attempts of Quacks; but receiving no Benefit by their Applications, he committed himſelf to the Care of a Surgeon, who at firſt attempted to reduce the Bone, but without Succeſs; till by the Uſe of diſcutient and attenuating Medicines, the condenſed Matter which filled up great Part of the *Acetabulum*, was diſſolved. The Bone being reduced, the Patient was confined to his Bed; and the next Day to the ematiated Thigh and Leg, there were ſeveral Cupping-Glaſſes applied; after which the Parts were fomented with the following Fomentation. ℞ *Summitat. Abſinth. Scord. Hiperic. ana m.* ii. *Roſamarin. Salviæ. Lavend. ana m.* i. *coq. in q. ſ. aq. font. ad colat. adde S. V.* ℔ i. During the Patient's Indiſpoſition he was confined to a dietetic Drink, which conſiſted of thoſe Ingredients as were capable of removing viſcid Obſtructions, and retrieving the ill Diſpoſition of the Juices.

By the Continuation of theſe Means for ſome Time, the Emaciation diſappeared, and the Thigh, Leg, and Foot, re-aſſumed their former Dimenſions.

REMARKS.

THE imperfect Luxation of the Hip probably proceeded from a Relaxation of the Ligaments, and a Condenſation of that Mucilage which Nature furniſhes to lubricate the Joint: This being by ſome Means condenſed or coagulated, and in Part filling up the Cavity, might oblige the Head of the Bone to recede and lodge on the external Margin of the *Acetabulum*. As for the *Atrophy*, it muſt be neceſſarily occaſioned by ſomewhat that was capable of denying the Influx of the Blood or animal Spirits in the Parts; for from hence Wounds, Bruiſes, Falls, Fractures, Diſlocations, *&c.* have frequently proved the Cauſe of an Emaciation of ſome particular Part. Now it is eaſy to imagine if a Part be deprived of its due Influx of Blood, it can no longer be preſerved in its due Diſtention, but the Fibres, Veſſels, and Veſicles, muſt neceſſarily ſubſide, becauſe they are no longer influenced by thoſe volatile and fluid Particles that before kept them in their natural Extenſion: Upon this Account the Parts muſt conſequently appear emaciated, and loſe ſo much of their former Dimenſions, as proceeded from the Fullneſs and Diſtention of thoſe Parts that were ſubſided. If the Nerves are abſtracted, it amounts to no more than this, that the Part is not ſo well qualified for receiving the Blood that is determined to paſs through it, by Reaſon the Veſſels are very much compreſſed by the Subſidence of the muſcular Fleſh, which at this Time ceaſes to be inflated. The Contiguity and Cloſeneſs of the Fibres of the Muſcles that muſt neceſſarily happen at this Time, in a great Meaſure proceeds from an Exinanition of their Interſtices, and the Emptineſs of the little Cells with which they abound. Thus we may ſee from what has been premiſed, that whatever prevents the Acceſs of Blood or Spirits to any Part, certainly cauſes its Emaciation; ſo that an *Atrophy* muſt be nothing more than the Falling of a Part from its former Dimenſions, by Reaſon of an Emptineſs of the Tubes and Vacuities with which it abounds. A neceſſary Reflection on theſe Things will very much aſſiſt us, in giving an Account after what Manner the Means that were made Uſe of in the Cure of the above-mentioned Patient, became ſo very ſucceſsful. In order to ſucceed in this Enquiry, we will firſt take Notice, that while the ſpringy Particles of the Air, which were intimately mixed with that ſmall Quantity of Blood and other Juices which remained in the Veſſels and Fibres of the Parts, were confined to the narrow Limits of ſuch contracted Canals, by the Preſſure of the external, and ſubſiding of the muſcular Fleſh, we might reaſonably ſuppoſe the Dimenſions of the Part would appear conſiderably leſs than uſual; but when the Compreſſure of the external Air was in a great Meaſure removed, in thoſe Places where the

Glaſſes were applied, the ſpringy Particles of the Air which were in the Juices, were in a Capacity to exert their Elaſticity, and expand themſelves; by which Means they dilated the contracted Fibres of the Veſſels, diſtended the compreſſed Veſicles, and inflated the ſubſided muſcular Fleſh; ſo that the Influx of the Blood and Spirits was in a ſhort Time recovered in the Part. Beſide this, the frequent Application of hot Stupes in ſuch a Caſe, does not a little contribute to effect a Cure, for it is evident a Dilation or Rarefaction of the Air may be produced by Heat. Now no ſooner are the calorific Particles inſinuated through the enlarged Pores of the Part, but by the Briskneſs of their Motion they ſo agitate the aerial Particles, as to oblige them to unfold or unwind their Spring; by this Means they become capable of enlarging the Diameters of thoſe Tubes in which they were before cloſely confined, by forcing them to recede laterally (their Sides not being ſufficient to oppoſe their Spring) till they had taken up as great a Space as they required. From hence it is certain, that the Air in the Blood keeps itſelf in an *Equilibrum* with the external Air, becauſe the internal Air is contracted or expanded in a reciprocal Proportion to the Increaſe or Leſſening of the Preſſure of the external Air; likewiſe that the Blood, as it contains ſuch ſpringy aerial Particles, muſt be conſequently liable to various Alterations, according to the various Degrees of the Preſſure of the Air on the Surface of the Body.

OBSERVATION V.

Of a Fractured Thigh.

A MAN of about 34 Years of Age, by a Fall from a Ladder, fractured his left Thigh-bone about the Middle, which was attended with Inequality of the Thigh, Colliſion of the Bones when handled, and exceſſive Pain. The Patient being laid in Bed, in order to the Reduction of the Bone, one Aſſiſtant graſped the Upper-Part of the Thigh above the Fracture, and another laid hold juſt above the Knee: Theſe two making a violent Extenſion to bring the Ends of the Bone together, the Surgeon at the ſame Time preſſed the moſt protuberant Part, till he brought the Ends to an exact Level. A moderate Extenſion was continued, till the fractured Member was encompaſſed with a Plaiſter, Compreſs, and Bandage. The firſt Compreſs conſiſted of a Piece of Linnen folded into ſeveral Doubles, which was applied on that Part which had been moſt protuberant (becauſe the fractured Bone has always a Propenſity that Way, which it tended when fractured). Over this was applied a larger Compreſs, which encompaſſed the Part with convenient Bandage and Splints; obſerving to apply a Linnen Compreſs under the Thigh, to fill the Concavity which the Thigh-bone makes. This being done, the Thigh and Leg were laid on a Pillow, and Junks, with a Cradle over them to defend the Parts from the Preſſure of the Bed-cloaths. The Patient had likewiſe by the Fall received a Contuſion on his left Side, for which Reaſon he being likewiſe Plethoric, he was ordered to have ℥ viii. of Blood taken from him, and that Night was preſcribed a parergoric Draught, which ſomewhat compoſed his Spirits, and moderated the Motion of his Blood. About the 8th Day the Foot on the ſame Side was obſerved to be oedematous, which gradually increaſed till it had extended itſelf almoſt as high as the Knee, whereupon it was fomented with a Decoction of *Abſinth. Centau. Hiper.* &c. to which was added, *S. V. q. ſ.* By the daily Uſe of this, in leſs than a Week's Time, the Tumour was perfectly diſcuſſed. About the 14th Day the Bandage being ſomewhat looſe, the Dreſſings were removed, and all Things appeared to Satisfaction. At this Dreſſing was applied a Plaiſter of equal Parts of *Diapal.* and *ad Hern.* with Compreſs and Bandage as before. About the 32d Day the Dreſſings were again removed, and the Part likewiſe appeared under very good Circumſtances. At the next Removal of the Dreſſings, which was at about 6 Weeks End, the Re-union of the Bone ſeemed to be perfectly compleated; notwithſtanding which the Surgeon obliged him not to ſet his Foot to the Ground for ſome Time.

REMARKS.

THE Cauſe of the Inequality of the Thigh, Colliſion of the Extremities of the Bone, and the Pain which ſucceeded the Fracture, are ſo eaſily to be accounted for, that we ſhall not here ſpend any Time in their Examination: However, the Explanation of the Cauſe of the *Oedema* requires us to make ſome neceſſary Reflections on the dull languid Motion of the Blood through the Part; which proceeded from the too ſtrait Bandage, which by compreſſing the Veins in a great Meaſure, obliged the refluent Blood to ſtagnate. We cannot conceive the Ceſſation of the Body from Motion could in this Caſe contribute any Thing to it, notwithſtanding it is certain the Circulation of the Blood is accelerated by the Motion of the Muſcles; for when they are in Action, they compreſs the Veſſels which paſs through their Interſtices, and ſo oblige the Blood to a quicker Circulation: I ſay, notwithſtanding this, when the Body no longer remains in an erect Poſture, the Contraction of the Heart and Arteries is of ſufficient Force to propel the Blood with as great a Velocity as is neceſſary through all the Parts of the Body, provided it meet with no Compreſſure or Obſtruction of its Channels, the natural Conſequence of which would be an Inundation of the contiguous Parts, with an extravaſated *Serum*,

rum, as we may eaſily collect from the Experiment made by Dr. *Lower*, who by making a Ligature on the deſcending Trunk of the *Vena Cava*, obſerved there were abundance of Seroſities ſeparated: From hence the Artiſt may eaſily infer how prejudicial the Continuance of too ſtrait Bandages near the Extremities may prove to thoſe Perſons who are inclinable to cachectic Indiſpoſitions, whoſe Blood is generally loaded with ſerous Crudities; for frequent Obſervations has made it evident, in ſuch Caſes more eſpecially, that Patients have been afflicted with Oedematous Tumours, which have baffled the Attempts of ſome common Practitioners; becauſe it is impoſſible to remove thoſe Accidents till the whole Maſs of Blood is retrieved from its degenerate State. From what has been premiſed, we may reaſonably infer that the Blood moving ſlowly through its Veſſels in that Part, gave its ſerous Part an Opportunity of ſeparating itſelf from thoſe Parts which were of a thicker Conſiſtence; for the ſerous Part gliding gently along the internal Sides of the Veſſels (its Viſcidity intitling to that Place) when it arrived at that Part of it's Canals, where by their Inflexions they are united, it gradually diſtilled through the Orifices which are placed on the Sides of thoſe Veſſels into the Mouths of the Lymphatics, which we conceive to be continuous to thoſe Orifices. By this Means theſe Veſſels become diſtended with this Juice, which by the Continuance of their Valves (which open toward the Heart, and ſhut toward the Extremities) deny the Diſcharge of the Liquor the ſame Way it was admitted; for which Reaſon it ſoon broke thoſe tender Veſſels, extravaſated and lodged itſelf in the Poroſities of thoſe membranous Parts, from whence the Dimenſions of the Part became conſiderably enlarged, and its external Teguments were capable of retaining the Impreſſion they received from the Compreſſure of a Finger a conſiderable Time. What farther confirms us, that the Slowneſs of the Circulation of the Blood is the frequent Cauſe of Oedematous Tumours, is an Obſervation, that theſe Sort of Tumours frequently afflict pregnant Women; the Cauſe of which is, the Womb being very much diſtended by the *Fœtus*, *&c.* by its Weight it compreſſes the *iliac* Veins, by which Means the refluent Blood is very much intercepted in its Aſcent, ſo that great Quantities of Seroſities are ſeparated, which diſtending the Parts, produce thoſe Tumours. Add to this, the Compreſſure of the Lymphatics.

OBSERVATION VI.

Of a Tumour on the Knee.

A YOUTH of about 14 Years of Age received a Kick of a Horſe on his left Knee, which violently contuſed the Part, and obliged him to keep his Bed near two Months; during which Time, by the Uſe of proper Means he in ſome Meaſure recovered the Uſe of the Member, and was able to walk tolerably well with the Aſſiſtance of a Cane. Soon after this, diverting himſelf with ſome Exerciſe, he put himſelf into a violent Heat, which by ſuddenly expoſing himſelf to the cold Air, was ſucceeded by an univerſal Shivering, which terminated in a Fever: By the next Morning the Patient's Knee, which had been before diſordered, became tumefied and painful; which gradually increaſed as the Fever remitted, till it was exended to a vaſt Degree. In the mean Time the natural Colour of the Skin received but very little Alteration. At Interims he was afflicted with miſerable, excruciating, and fixed Pains; which on the leaſt Motion of the Part were almoſt inſufferable. At firſt proper Means were made uſe of to diſcuſs the Tumour, but without Succeſs; whereupon a Suppurative Cataplaſm was applied, but without any conſpicuous Effect, for it did not ſo much as excite an Inflammation of the Part. That there was Matter in the Tumour, was evident from its Fluctuation, which was eaſily diſcovered by the commodious Application of the Fingers to the moſt protuberant Part of the Tumour; whereupon an Inciſion was made on each Side of the Knee, thoſe being the moſt prominent Parts, and the moſt proper to favour the Diſcharge of the Matter, which did diſcharge in a conſiderable Quantity. It is obſervable, that the Matter which diſcharged itſelf immediately on the Diviſion of the Teguments, exactly reſembled Curds and Whey; but afterwards the ſerous Part ſeemed to be tinctured with Blood. The Abſceſs was filled with dry Doſſils to abſorb the ſuperfluous Humidity, with Pledgets, and a Compreſs over them all, which was kept on with a retentive Bandage adapted to the Part. The next Day it was dreſſed with ſoft Doſſils, armed with a good Digeſtive, which was ſo applied, as that they might have their equal Effect on all Parts; over which were applied Pledgets, a Compreſs, and Bandage as before. This Method of Dreſſing (the daily Uſe of a Fomentation being added) was continued for ſome Time; for it was a conſiderable while before the Abſceſs could be brought to a good Digeſtion; which may not ſeem ſtrange, if we conſider the Nature of the Tumour, and the Structure of the Part where it was ſituated. After a good Digeſtion was procured, it was dreſſed with the following deterſive and ſarcotic Decoction. ℞ *Summitat. Cent. Min.* m*i. Rad. Gent.* ℥i. *coq. in aq. font.* ℔iſs. *ad.* ℔i. *in colat. diſſol. Mel Com.* ℥i. *tum adde Tinct. Myrrhæ* ℥ii. By the Uſe of this, in about a Month's Time it was ſufficiently incarned, and in leſs than a Fortnight's Time, it was firmly cicatrized by ſome of the common Epulotics, the Part remaining ſound, and performing its natural Functions as before.

REMARKS.

THE ſatisfactory Obligations which we have received from the Antients, for tranſmitting to us the Curioſities (and other Things of no leſs Importance) which occurred in their Practice, ought not to influence us ſo far, as to oblige us to deſiſt from condemning thoſe Opinions, which the ſurpriſing Diſcoveries of latter Anatomiſts have found to be notoriouſly falſe; tho' at the ſame Time, the Reſpect we have for their Writings, (as they laid the Foundation for our modern Diſcoveries) ſhould engage us to pay a juſt Deference to their Authors, and reſtrain us from making any Reflections, when we obſerve their Expreſſions obſcure, or ſome conſiderable Things omitted, (which could not be accounted for, without greater Skill in Anatomy than ever they were Maſters of.) Thus, in the preceding Caſe, without a competent Knowledge of the Mucilaginous Glands, and the Fluid they ſecrete, (which the Antients were not acquainted with) it would be impoſſible to give a rational Account of the Tumour and ſeveral other Effects: It is for this Reaſon we cannot ſolely confine ourſelves to the Peruſal of their Writings, by reaſon they do not contain all we are obliged to know, to render ourſelves Artiſts in this our Chirurgical Province: But not to expatiate on theſe Particulars, but confine our Thoughts to the Explanation of the Cauſe of the Fever, and the Original of the Tumour; we ought to obſerve that the Perſon being in a violent Heat, and the Pores of his Body conſequently ſufficiently dilated to favour the Diſcharge of a large Quantity of Salts, diſſolved in Phlegms by Sweat, or inſenſible Tranſpiration, by ſuddenly expoſing himſelf to the cold Air, the cuticular Pores were immediately conſtringed, by which Means thoſe ſaline Particles, which ſhould have tranſpired, were detained in the Veſſels, where they ſoon diſſolved the Texture of the Blood, and deſtroyed the due Mixture of its Parts; ſome of which receiving ſo great an Alteration from thoſe ſaline Particles, degenerated ſo far as to be for ever incapable of a ſtrict Union; ſo that Nature uſed her utmoſt Efforts to expel them; for we muſt Remark, that if at any Time there are Particles contained in the Veſſels, whoſe Unaptneſs to be mixed with the Maſs of Blood excites ſuch an inteſtive Motion, as to deſtroy the eſtabliſhed Proportion of its Parts, Nature, that internal Agent, is excited to exert her Efficacy, to expel or ſubdue them. Theſe morbific Particles were gradually diſcharged from the Maſs of Blood, by thoſe mucilaginous Glands, which officiated for that Part. Now no ſooner had the Parts ſuffered the firſt Attacks by a ſmall Quantity of the excluded Matter; (which produced accute Pains) but the Spirits were conſequently put in a tumultuous Diſorder, which they communicating to the Blood, promoted its Circulation, the ſooner to expel the remaining noxious Particles; theſe mixing themſelves with the mucilaginous Juice, which ſerved to lubricate the Joint, ſoon diſunited the Texture of its Parts, and turned it into a ſerous and caſeous Subſtance. It is obſervable, much the ſame Alteration Dr. *Havers* * obſerves to enſue on the mixing with it.

To account for thoſe acute and fixed Pains, which miſerably afflicted the Patient, we need only obſerve, that the morbific Matter partly conſiſted of ſaline Particles, which fixing their Points on the nervous and membranous Parts, did not fail to produce thoſe acute Pains, and the Quantity of Matter diſtending the Fibres beyond their natural Tone, affected the Part with that fixed dolorific Senſe. We never had the Opportunity of ſeeing but Two of theſe Tumours in muſcular Parts; one of which, we have Reaſon to believe, derived its Original from the Joint: The Tumour was in the left Thigh of a Man of about 26 Years of Age, who ſome Time before had laboured under a violent Pain in his left Hip, which he ſuppoſed proceeded from a violent Cold he had taken: The Tumour was opened by Cauſtick, and a Matter diſcharged like that in the preceding Obſervation, but changed its Colour after a few Days, and became very fœtid: In a ſhort Time, by the Diſcharge of ſuch a vaſt Quantity of Matter as daily came away with the Dreſſings, he became very much emaciated, and ſoon after died. On Diſſection, the *Acetabulum* of the *Innominatum*, and almoſt all the Fore-part of the *Os Femoris* was found carious.

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* See *Havers* on the BONES, Octavo.

Observation VII.

Of a Leg Amputated.

A YOUNG Man of about 16 Years of Age, had for ſeveral Years been ſubject to ſcrophulous Tumours; at length he was ſeized with an unuſual Pain in his right Ancle, which was immediately attended by an Inflammation and Tumour; this in a ſhort Time increaſed, till it had extended the Part to a very conſiderable Degree. In this Condition was the Youth committed to the Care of the ſame Surgeon, who had formerly had the Succeſs of removing ſome Diſorder he at that Time laboured under. After he had continued ſome Time under his Care, the Matter, by its corroſive Quality, made ſeveral ſmall Apertions, through which it daily diſcharged itſelf in a conſiderable Quantity: In thoſe Orifices were introduced as many Tents, which by penning up the Matter, enlarged the Abſceſs, and created an almoſt unſupportable Pain. After ſome Time, by the continual Diſcharge of ſuch a Quantity of Matter, the Patient became very much emaciated: About which Time, he was attended with an Hectic Fever; whereupon his former Surgeon being diſmiſſed, he was committed to the Care of one (whoſe frequent Succeſs in Caſes which require the greateſt Skill might be ſufficient to recommend him) who, on Examination of the Part, diſcovered the lower Extremity of the *Tibia*, and one or more of the Bones of the *Tarſus* to be carious; which was likewiſe evident from a Colliſion of the Bones upon the leaſt Motion of the Joint. On mature Conſideration of theſe Things, (the Opinions of ſome Phyſicions and Surgeons then preſent concurring) it was agreed that the only Proſpect of effecting a Cure, was to am-

amputate the Member: Accordingly Generals having preceded, which retrieved the ill Diſpoſition of the Juices, it was thus performed. The Patient being ſeated on the End of a Form, with a Servant behind to hold him firm, and another before to keep the Leg extended; a ſtrong Ligature was placed about 5 or 6 Fingers Breadth above the Knee, with a Compreſs under the Thigh, about the ſame Diſtance above the Bending of the Joint, and a Piece of Paſtboard under that Part of the Ligature which was to be twiſted, to prevent thoſe Corrugations the Skin might be otherwiſe liable to, which would put the Patient to unneceſſary Pain; Another Ligature was made about 5 Fingers Breadth below the Joint, juſt above the Place where the Artiſt deſigned to make the Inciſion. The firſt of theſe Ligatures an Aſſiſtant, by means of a Tourniquet, or Turnſtick, ſo ſtraitned, that it obliged the Compreſs which was placed under the

Thigh, to preſs the Veſſels ſufficiently, to intercept the Flux of Blood; and, by rendering the Part in ſome Meaſure deſtitute of Senſe, made the Operation the more eaſy to the Patient. The other Ligature, which was a Fillet bound exactly even round the Part, ſerved as a Rule to inciſe by, and keep the Fleſh ſteady. Then the Operator placed himſelf between the Patient's Legs, with his diſmembring Knife in his right Hand, his left being fixed on the Back to hold it firm: He placed it juſt at the lower Edge of the Fillet, where, by a circular Turn of his Hands, he made an Inciſion quite round to the Bones; after which an Aſſiſtant, with a Catlin, ſeparated the Fleſh betwixt them, and ſcraped off the *Perioſteum*; then a Servant drew up the muſcular Fleſh, to give liberty to take off as much of the Bone as poſſible, while the Surgeon took the Leg in his left Hand, and fixing the Saw on both Foſſils at once, (which he was obliged to do, by reaſon

ſon the Strength of the *Fibula* was not ſufficient to ſuſtain the Weight of the Saw without ſhivering, had it not been aſſiſted by the larger Foſſil) he at a few Strokes ſeparated the Member from the Body. This being done, the Ligature, which ſerved to keep the Fleſh and Skin firm, was removed, and the uppermoſt Ligature was a little looſened, to diſcover the Mouths of the Arteries, which at that Time emitted their Blood with great Veloſity: Then the Surgeon, with a peculiar Pair of Forceps, (with a Ligature over them, which conſiſted of double Thread waxed) took hold of one of the Arteries, which an Aſſiſtant, by ſlipping the Ligature over the Forceps, tied pretty ſtrait: The Ligature which was ſtraitned by the Tourniquet, being a ſecond Time looſened, two more Arteries were diſcovered, which were tied as the former. A Stop being put to the Effuſion of Blood, the muſcular Fleſh was brought over the Bones as much as poſſible, and two ſmall dry Pledgets being applied on their Extremities, a large Pledget of Tow armed with *Terebinth*, warm with the Palm of the Hand was applied over the whole Stump, which was covered with a dry Pledget and a Compreſs 4 Times double, over which was drawn a Bladder cut at its Edges, to make it ſit the more commodiouſly, which were encompaſſed with a Strip of Cloth, ſpread with ſomewhat ſufficiently adheſive, to keep it firm; then a Cloth cut in Form of a Croſs was applied, and the Part rolled up with two Rollers ſprinkled with Vinegar, one of which conſiſted of a ſingle Head, and the other of a double Head, each of which was about 3 Inches broad, and of a ſufficient Length. After the Performance of theſe Things with as great Expedition as poſſible, the Patient having taken a Spoonful of Cordial Waters, (which he likewiſe had before the Operation began) he was placed in Bed, with a Pillow to ſupport the Stump, a Perſon holding his Hand on the Dreſſings for about two Hours after the Operation. The third Day the Dreſſings were removed, and all Things appeared to be in a very good Condition: In this Dreſſing care was likewiſe taken to keep up the muſcular Fleſh to the Extremity of the Bones as much as poſſible; which was very well effected, by binding a Strip of ſticking Plaiſter pretty ſtrait round the Stump, about a Finger's breadth from the Edges. The remaining Part of the Dreſſing conſiſted in the Application of the digeſtive Compreſs and Bandage, as before, only omitting the Hogs Bladder. By the third Dreſſing, the Stump ſeemed to be very well digeſted; whereupon it was dreſſed with *Tinct. Myrrhæ, et Mel Roſ.* This was continued a few Days, till it had corrected the Laxity of the Fibres of the Part, leſſened that too large Expence of Matter, occaſioned by the Digeſtive, and given the Fleſh a tolerable firm Conſiſtence. After this, the Cure was effected, by dreſſing the Edges with *Ung. aur.* and *Deſſicat. Rub.* alternately, and applying dry Lint on the Stump, or the catheretic Lint elſewhere deſcribed, as Occaſion required.

RE-

REMARKS.

AMPUTATION being an Operation, by the judicious Performance of which the Life of a Patient oftentimes entirely depends, (ſeeing it is only performed by Artiſts, in thoſe Caſes which have proved the Uſe of other Means to be ineffectual, or where Reaſon authorizes them to attempt it) it ought to influence them ſo far, as to oblige them to reflect on ſome neceſſary Particulars before the Performance of the Operation, at the Time of performing it, and after it is finiſhed; becauſe the having a particular regard to theſe Things, may be the Means of regulating ſome very important Circumſtances. Thus the deferring the Operation in a Patient, whoſe Conſtitution or Nature of the Diſeaſe does not immediately require its Performance, and waiting for a more favourable Seaſon of the Year, may prove very beneficial in ſome Caſes, ſeeing the various Seaſons of the Year have each of them different Effects on our Bodies. Likewiſe the Conſideration of effecting a Cure is very neceſſary to proceed the Operation; for notwithſtanding it may be performed in ſome Caſes, where ſeveral Advantages may conduce to effect a happy Cure; yet it would be Raſhneſs to attempt it in all: For Inſtance, in old ſcorbutic Habits, where all the Juices are ſaturated with ſaline Particles, which are capable of producing ſuch an Alteration in any Part of the Body, (provided it be by any Means exaſperated) as it ſhall in a ſhort Time be ſeized with an entire Mortification. I ſay in ſuch a Caſe as this is, the performing the Operation, would only tend to haſten the Deſtruction of the Subject; for the degenerate State of the Juices not being retrieved, if the Part is extirpated, the Wound will certainly mortify: For the ſame Reaſon, thoſe Mortifications which accompany acute Fevers, are equally deſtructive to the Patient, if he undergoes the Operation: For the natural Diſpoſition of all the Juices of the Body, being at that Time depraved, and the balſamic Quality of the Blood entirely conſumed, the Part muſt neceſſarily lay very liable to be aſſaulted by a Gangrene, the gradual Progreſs of which, in a ſhort Time, puts a Period to the Patient's Life. On the other Hand, if the Age, Conſtitution, *&c.* of the Subjects favour, the Undertaking is often performed with all the deſired Succeſs imaginable; not but ſometimes the leaſt Irregularity in the Patient's Living, or ſuch like; (tho' perhaps before all Things ſeemed to concur to render a ſpeedy and effectual Cure) yet ſuch a little Diſorder may perfectly change the Scene, and cauſe all Things to appear with quite another Face: For this Reaſon, the Artiſt is always ſolicitous of being acquainted with every little Circumſtance; the Life of the Patient frequently depending on the regulating thoſe Matters, which to the inconſiderate Eye

appear

appear inſignificant. If the Patient has for a long Time laboured under ſinuous Ulcers or Fiſtulas in any large Joint, cauſed from ſome ill Diſpoſition of the Juices, it may be expedient before the Operation be performed, that Generals preceed to retrieve theſe Fluids from their degenerate State, revive the decayed balſamic Quality of the Blood, and make it capable of anſwering Nature's Intenion, as it is the Grand Material ſhe conſtantly employs in ſuch Caſes. We have ſometimes obſerved that a violent Contortion of the Knee or Ancle has been ſucceeded by a Caries on the Joint; which has obliged the Patient to have the diſordered Member extirpated, before he could have any Proſpect of a Cure; but in ſuch Caſes as theſe are, we ſuppoſe the Contortion of the Joint diſtorted one or more of the ſmall Veſſels, which aſſiſted in the Compoſition of the mucilaginous Gland, whoſe Office it was to ſecrete a Juice for the lubricating the Extremities of the Bones, and facilitating their Motion. From hence we may reaſonably ſuppoſe thoſe ſmall Paſſages of the Gland being confounded, an Interruption of the Motion of that Juice muſt neceſſarily follow; from whence the Veſſels become very much diſtended, and the whole Gland preternaturally enlarged. Now we conceive that the Juice, by ſtagnating in thoſe minute Tubes, ſoon loſes its natural State, and grows corroſive; by which Means it becomes capable of eroding their Parietes, and mixing itſelf with ſome of the ſame Sort of Juice, which had not yet received this Alteration; it imports to it its corroſive Quality, the Union of which forms, as it were, a *Menſtruum*, or diſſolving Fluid, which, as all others, firſt works on thoſe Parts that are moſt capable of a Diſſolution, *viz.* the Cartilages; after which it diſplays its Effects on the Bones themſelves, eroding and diſuniting them till it frequently penetrates into their internal Subſtance. This Conjecture is chiefly grounded on ſome Obſervations which occurred on the Diviſion of ſome Joints, which were amputated by reaſon of no other Diſorder at firſt, than a violent Diſtention or Contortion; in one of which we obſerved, that That Part of the Cartilage which was contiguous to the Gland was firſt diſſolved: In one Joint we found the Cartilages, which clothed the Extremities of the Bones, quite conſumed, before any Part of the Bones themſelves were obſerved to be apparently altered; and in another the corroſive Juice had penetrated into the Bone, under the diſordered Gland, a conſiderable Way, before half the Cartilage was diſſolved. It may ſometimes happen that the Extremities of the Bones being diveſted of their Cartilages, may unite and form an *Anchiloſis*; an Example of which *Fabricius Hildanus* gives us, of a Child of 8 Years of Age, who had his right Arm diſlocated from a Fall, which was mightily emaciated. At length his Relations perceived a Coalition in the Bending of his Arm, which hindered him from extending it, and it continued bent like a crooked

Stick, without putting him to any Pain. From what has been premiſed, the Artiſt may eaſily collect how circumſpect he ought to be in violent Diſtortions of the Joints, ſince they ſometimes occaſion ſo terrible an Operation or Death. As to the Place where this Operation is to be performed, and the Method how, there are various Opinions to be met with in the Writings of thoſe Authors who have treated on this Subject. Thoſe who thought themſelves ſufficiently authoriſed by ſo great a Man as *Fab. ab Aquapendente* were of Opinion, that extirpating a Member in the mortified Part was moſt convenient: Others, particularly *Hippocrates*, *Guido Laurentius*, *Doubertus*, and *Hildanus* (when an abſolute Neceſſity did not oblige them to the contrary) ſeemed to approve of amputating in a Joint; but this the Artiſt eſteems very improper, by reaſon it requires a much longer Time to complete a Cure: An Inſtance of this we ſaw in a Man about 26 Years of Age, of a very good Habit of Body, who had his right Leg amputated at Sea in the Joint of his Knee, which was near a Twelvemonth before it could be brought to a firm Cicatrice, notwithſtanding proper Means were made uſe of as is uſual in ſuch Caſes: But this may be eaſily accounted for, if we do but obſerve the Structure of the Part, which we find to be deſtitute of thoſe muſcular Fibres which are the proper Tubes for conveying thoſe Particles which are adapted to effect that grand Deſign of Nature. The Methods the

Antients deſcribed, of performing this Operation, were ſo various, that we ſhall not ſpend Time in their Examination, but make ſome Remarks on that mentioned in the preceding Hiſtory; the Simpleneſs and Eaſineſs of which is ſufficient to recommend it to all Artiſts. Firſt, Care is to be taken that a pretty thick Compreſs of Cloth be applied on that Part where it may with the greateſt Eaſe compreſs the Veſſels (when the Ligature is ſtraitned with the Tourniquet) ſufficiently to deny the Effuſion of Blood after their Diviſion. This, if the Operation be performed below the Knee, might be moſt conveniently applied in the Ham, did not the Tourniquet and Ligature incommode the Surgeon in rolling the Stump; it being often requiſite to keep the Ligature ſtraitned about the Part till all the Dreſſings are applied. It is for this Reaſon the Compreſs is to be applied a little higher, between the *Muſ. biceps Femoris* and *Semi-membranoſus.* If the Operation be performed above the Knee, the Compreſs may be moſt properly applied on the Inſide of the Thigh, a little below the Groin. If the Arm is to be amputated, it is to be applied on its Inſide, betwixt the *Muſ. biceps* and *Gemellus*; or in this Caſe the Fingers themſelves, if commodiouſly applied, by compreſſing the Teguments, may oblige the Sides of the arterior Channels to be contiguous, and ſo perfectly interrupt the rapid Motion of the Fluid they contain, and hinder its Effuſion. However, either of theſe Ways being ſufficient to command the Blood in this Caſe, and permit it to paſs out of the divided Arteries, in order for their Diſcovery, that they may be taken hold of by the Forceps and tied. The Operator is at his Liberty to proceed which Way he beſt approves of. As to the Ligature of the Veſſels (notwithſtanding a late Author diſapproves of its Uſe, chiefly to recommend a Remedy of his own Invention) it is certainly one of the moſt advantageous Methods yet known and practiſed; for after their Uſe, a proper Digeſtive may be ſafely applied the very firſt Dreſſing; and thoſe Dreſſings may be removed the next Day, and no Hemorrhage enſue; altho' this the Artiſt never does, unleſs ſome preſſing Circumſtances oblige him to it. On the contrary, thoſe who apply Aſtringents to obſtruct or conſtipate the Mouths of the Veſſels, beſides the Inconvenience of keeping a Hand on the Stump for a whole Day, after the Operation, as ſome Authors propoſe, the Part is frequently convulſed, a freſh Effuſion of Blood often enſues, and Digeſtion is for a conſiderable Time retarded: This laſt happens by reaſon of the Stipticity of the Vitriol, or ſome other Ingredient which entered into the Compoſition of the reſtringent Powder; for it is certain that thoſe ſtiptic Remedies, whether aluminous or vitriolic, conſtringe the Orifices of the Veſſels and muſcular Fibres, and hinder the Emiſſion of thoſe Particles of which good Pus is formed, till, by the Application of proper Digeſtives, the Fibres recover their due

Tone, and their Orifices become relaxed. It is obſervable, when a Ligature is making about an Artery, the Patient uſually complains of a violent Pain, which he ſays exceeds that which was cauſed by the Inciſion. In order to account for this Phænomenon, we ought to obſerve, that the Nerves every where accompany the Arteries; that the Fluid the former contain might be ſo far influenced by the Vibrations of the latter, as to be kept in a continued Motion: Now the Arteries cannot be taken hold of by the Forceps, without ſeizing a ſmall Part of the contiguous Fleſh, and with it probably the Nerve which accompanied the Artery; ſo that we may reaſonably ſuppoſe, that exceſſive Pain the Patient is ſenſible of is entirely owing to the Ligature's being made on the Nerve, by reaſon thoſe Parts are endued with the moſt exquiſite Senſe imaginable. Before the Removal of the firſt Dreſſings, it may be convenient to humect them with ſome proper Oil, the better to diſengage thoſe Parts which ſo cloſely cohere one with the other, leſt by removing the Dreſſings with too great Violence, a Ligature unhappily ſlips off a Veſſel, and a freſh Effuſion of Blood ſucceeds. For this Reaſon the Artiſt is always very circumſpect in the Removal of his Dreſſing; which always creates the greateſt Difficulty, by reaſon the Bladder adheres ſo faſt to the contiguous Dreſſing as not to be removed without a great deal of Trouble and Inconvenience. It is for this Reaſon (and its retaining the Blood in a freſh Hemorrhage) ſeveral Perſons have, with a great deal of Reaſon, diſapproved its Uſe. We have more than once obſerved, that the Operator has had ſome Difficulty in making his Ligatures on the Arteries of old emaciated Subjects, by reaſon of the hard compact Subſtance of their Coats, which at that Time ſeemed ſcarcely capable of being ſufficiently conſtringed by the Ligature to deny the Effuſion of Blood. Theſe Oſſifications, as it were, of the Arteries, are frequently met with in old Perſons, whoſe Blood has loſt its balmy Quality, and is become little more than a *Caput Mortuum*. We had once the Opportunity of ſeeing a very remarkable Caſe, much of this Nature, in an old Man, who was diſſected in the Theatre in the Phyſicians-College; the right crural Artery of which Subject appeared very hard and compact to the Fingers; the Fibres which compoſed its internal Coat ſeeming as tho' they were interſperſed with ſabulous Concretions. During the firſt 4 or 5 Dreſſings, if the Surgeon has been cautious in defending the Ends of the Bones from the Action of the Air, by the Application of dry Pledgets, they ſoon begin to be re-inveſted with new Fleſh, and the Stump may be cured without an Exfoliation: Tho' he has no Reaſon to be ſolicitous about it; for while he is endeavouring to effect a Cure by convenient Applications, that Part of the Bone which has received any Alteration from the Air, exfoliates without creating the leaſt Trouble or Inconvenience. It is obſervable, that when the Edges of a Stump are drawn into a very narrow Circumference, and the Diſcharge of Matter has for ſome Time decreaſed, the Patient begins to grow gradually more plump and fleſhy; inſomuch that in a ſhort Time after the Cure is completed, there is generally ſo conſiderable an Alteration in the Conſtitution of the Patient's Body, as is equally ſatiſfactory and ſurprizing. This, in thoſe Caſes which have proceeded from chronic Cauſes, as Fiſtulas, Cancers, ſcrophulous Ulcers, *&c.* it effects by draining off thoſe noxious ſaline Particles, which, by being mixed before with the Juices of the Body, deſtroyed their nutritious balmy Quality, and rendered them incapable of maintaining the Parts in their due Proportion and Temper; for the Blood, in ſuch Caſes as theſe, is in a great meaſure deprived of its oily Particles, which ſhould have engaged and ſheathed thoſe *Spicula* or Edges of the Salts; it muſt begin conſequently to erode and conſume the Parts of the Body, and procure ſuch a general Emaciation as is frequently obſerved. Now when thoſe *Miaſma* of the Diſeaſe are drained off, and the Juices rendered ſweet and balſamic, a Reparation of thoſe Parts which have been expended, may be eaſily accompliſhed, and the Fibres may become ſo diſtended with proper Matter, as to enlarge the Parts of the Body beyond their former Dimenſions. Before we finiſh our Remarks on this Subject, we ſhall take notice of a new Way of amputating large Members, with a more ſpeedy and convenient Method of curing Stumps than that commonly practiced; as is mentioned by Mr. *Young*, in his *Currus Triumphal. Terebinth.* p. 10. The Ligature being made on the Part, as in other Amputations, he propoſes the raiſing a Flap of the membranous Fleſh (if it be the Leg) which covers the Muſcles of the Calf, with a Catlin, or ſome long Inciſion Knife, beginning below the Place where you intend to make Exciſion, and raiſing it thitherward, of Length enough to cover the Stump: This being done, it is to be turned back under the Hand of him who gripes; and as ſoon as the Member is ſevered from the Body, this Flap of cutaneous Fleſh * is to be brought over the Stump, and faſtened to the Edges of it by 4 or 5 Stitches: After this, a Doſſil is to be clapped into the inferior Part, that one Paſſage may be open, leſt any Blood or Matter lodge between. But of that (ſaith mine Author) there ſeldom occurreth any. Over this is to be applied a common Defenſative *ex Bol. Sang. Dracon. Maſtich. Terræ Sigil. &c. cum alb. Ovor. & Aceto*, which is to be kept cloſe with a croſs Bandage and other Compreſſes, after the uſual Manner: The former, *viz.* the Defenſative, not only defends from Accidents, as Heat, Pain, Fluxion, *&c.* but gently conſtipateth the Veſſels thereby, contributing to the ſecuring the Hæmorrhage, and very conſiderably aſſiſts the Agglutination: The latter, *viz.* the Compreſs Ligature, keeps the Fleſh ſnug, and cloſe to the divided Ends of the Veſſels; confirms the Conſolidation, keeps the Part from Cavities, and the Blood from Extravaſation; and hinders that Deflux of Humours which would otherwiſe deſtroy the Intention of Cure. In this Way of Cure our Author adviſes Phlebotomy, Juleps, Ligature of the extreme Parts, if Need be, with what elſe may contemperate the Blood, hinder Defluxion and Maturation, and promote Conſolidation. In the ſucceeding Dreſſings, he propoſes the Uſe of Medicines, healing *per Symphyſin*: Among which he is of Opinion, there are none better than that already mentioned, provided there be ſome Powder of the Roots of great Comphery added thereto; the Doſſil, if any is uſed, may be left out the next Dreſſing, or that following it. That this Method hath cured ſuch a Stump in 3 Weeks, is a Truth our Author could vouch by ſufficient Teſtimony: After this he takes notice, that this Manner of diſmembring, *&c.* is not to be made uſe of where the Part hath been much inflamed, tumefied from Fluxion, or otherwiſe vexed therewith; nor in Members amputated for chronic Cauſes, as Cancers, Fiſtulas, *&c.* or where the Body is pocked, or very cachectic; becauſe ſuch Digeſtion (which would deſtroy the Union) is neceſſary to rectify and ſweeten the Maſs, which it doth, by drawing the *Miaſma* of the Diſeaſe, more than 10 Fontanels can do: But in moſt Amputations made at Sea in Fight, or on Land in Battles, or whereſoever acute Accidents, ſuch as Wounds, recent Lacerations, require it, it may be done, and with thoſe Advantages of the other way it rivals. In the next Place our Author reckons up ſeveral conſiderable Advantages, which he ſays are manifeſtly acquired by this new Way. For a farther Satiſfaction in which we refer the Reader to the abovementioned Book.

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* See *Platerus*'s Obſervation of the Hangman of *Baſil*, who ſtopped Bleeding by the Aſs of a Hen divided.

There yet remains one conſiderable Phænomenon to be explained before we finiſh theſe Remarks, which is, that after the Amputation of a Leg or Arm, the Patients uſually complain of a violent Pain for ſome Time, and have ſo ſtrong an Opinion that they have the actual Uſe of the Members, that it is Sight only that can undeceive them. There have been ſeveral Perſons, as well Philoſophers as Phyſicians, who have given their Opinions as to this Matter, particularly *Gaſſendus*, *Deſcartes*, *Etmullerus*, &c. but one of the lateſt we have met with, is that of Dr. *Verduc*, a *Paris* Phyſician, who after a handſom Acknowledgment of the Difficulty wherewith this Problem is to be ſolved, he tells us, that the Objects which touch the Organs of the Senſes, do cauſe a certain Reflux of the Spirits even to the Brain, in order to make a Senſation there; but yet the Objects are not always the Cauſe of this Reflux of the Spirits; for it is often produced by the Spring of the nervous Fibres: Thus in cutting one Part of the Body, there muſt needs follow a conſiderable Tenſion in the Nerves, and the Spirits at the ſame Time return to the Brain with a Kind of Impetuoſity. This Motion of the Spirits is certainly much greater, ſince after that the Part is cut off, the Nerve which remaineth, and which is extended even to the Head, is ſhorter; therefore the Spirits which flow from the Brain into this Nerve, are ſo crouded together there, that not being able to go any farther, they are reflected againſt the Bank, and thoſe which flow every Moment from the Brain, are violently beaten back again, not only by reaſon of this Reflux, but alſo from the Trembling which the nervous Fibres have received in the Operation; this perhaps (ſays our Author) is the Cauſe of thoſe Pains which continue afterwards.

OBSERVATION VIII.

Of an Aneuriſm *on the Back of the Hand.*

A Gentleman about 50 Years of Age, had a Tumour aroſe on the Back of his left Hand, much about the Bigneſs of a ſmall Hazel Nut, which by a light Compreſſure of the Finger, inſtantly diſappeared; but on the Removal of the Preſſure, it immediately reaſſumed its former State; which, with the continual Vibrations that were obſerved in it, intitled it to the Character of an *Aneuriſm*, the Skin retaining its Colour without the leaſt Alteration. It was a conſiderable Time before he had Recourſe to a Surgeon for Advice, by reaſon at firſt it did not in the leaſt incommode him in uſing his Hand; however, after ſome Time, it became more troubleſome, and its gradual Enlargement obliged him to it. During the Uſe of Means, his Surgeon engaged him to deſiſt from any violent Exerciſe, in which the Uſe of that Part was required, and immediately began his Method of Cure, by taking away about 10 Ounces of Blood: After this a thin Plate of Lead was applied over the Tumour, which was ſo adapted to it, as to compreſs it ſufficiently (when detained with a proper Bandage) without any great Inconvenience. This was continued for ſome Time, but without its deſired Effect; tho' in all Probability, its longer Continuance might have made the Gentleman ſenſible it was capable of effecting a Cure, notwithſtanding he ſo much ſuſpected it. However, the following Plaiſter, ſpread on Leather, was applied, ℞ *Emp. Diapal. ad Hern. ana pt. equal. m. f. Emp.* Over this was applied a Compreſs fixed to a proper Bandage, which was conveniently fitted to the Part; this Method was repeated as often as Neceſſity required.

In about 2 Months Time the Tumour ſeemed to be ſomewhat ſubſided, and the Pulſation was not diſcernible, the Artery to the Touch appearing as tho' it had aſſumed a Calloſity, or as if it had been perfectly oſſified.

R E-

REMARKS.

THO'we have met with Variety of Opinions concerning the Formation of an *Aneuriſm*, among the Writings of our Predeceſſors, there ſtill remains ſeveral Difficulties which are not to be accounted for, from what they have delivered on this Particular; which obliges us to look on them as unſatisfactory: For which Reaſon we ſhall offer what our own Thoughts have ſuggeſted to us on this Head, and leave it to the impartial Judgment of the Reader. But before we go about the Explanation of the Manner of its Formation, we ought to enquire into the Structure of an Artery, and the Properties of the Fluid it contains, the better to account for ſome Things which require their particular Examination. Now it is certain an Artery conſiſts of three Coats; the firſt is compoſed of a *Rete* of ſmall Blood-Veſſels, Nerves, and membranous Expanſions; the ſecond conſiſts chiefly of circular Fibres; the third, or internal Coat, is compoſed of Fibres extended according to the Length of the Artery. From a neceſſary Reflection on the Diſtribution and Order of the Fibres, which chiefly compoſe their Coats, we may reaſonably ſuppoſe them to be muſcular Tubes, which are either capable of a Contraction or Expanſion; the former conſiſts in the Fibres of the ſecond Coat, while the latter ſeems to conſiſt in the peculiar Structure of each. The Blood they contain is a compreſſible, dilatable or elaſtic fluid Body, which, beſide its conſtant progreſſive Motion, is intitled to an expanſive one, by means of an included Air, which gives it that Spring which forces it violently againſt the Parietes of the Veſſels. This expanſive Motion of the Blood, if its Veſſels retain their Continuity, is exactly proportioned to the Preſſure of the external Air on the Surface of the Body, and the conſtrictive Power of its Veſſels; ſo that if either of theſe by any means, happens to be abated, that is, if the external Air, by means of its Rarefaction, does not ſometimes preſs ſo violently on the Surface of the Body, as at others, the Air which is contained in the Veins and Arteries with the Blood, by unfolding its Spring, does, as it were, inflate or diſtend thoſe Veſſels, ſo as to enlarge their Diameters; or if by any means the Arteries loſe their Faculty of Reſilition or Contraction, the Fluid they contain by Means of the ſpringy Particles, which are intimately mixed with it, expands their unreſiſting Coats, till they are incapable of any farther Diſtention. This Opinion ſeems to be very much fortified by an Obſervation that the Diviſion of the two external Coats of an Artery, is always ſucceeded by an Enlargement of the Diameter of the Veſſel in that Place, which is a true *Aneuriſm.* This may be effected divers Ways, as by a ſharp and corroſive Humour, which may inſenſibly erode and conſume the external Coats; (as we conceive in the Caſe of the above-mentioned Gentleman) ſeeing thoſe Perſons who are of a thin ſpare Habit of Body, and whoſe Blood is generally deprived of a great Quantity of ſulphureous Particles, which ſhould have ſheathed the Angles of the corroſive Salts, are moſt frequently attended by ſuch Tumours. Likewiſe the accidental Diviſion of the Coats by a Lancet, ſharp corroding Medicines, *&c.* may produce ſuch an Effect. Now it is no hard Matter to conceive that if the orbicular Fibres of the ſecond Coat are divided, the Artery loſes its elaſtic or reſtitutive Powers, and gives the Particles of Air in that Place, an Opportunity of unfolding their Spring, and expanding all the Parts of the Liquor with which they are mixed. By this Means the Particles of the Fluid, by their lateral Preſſure, oblige the parallel Fibres of the internal Coat to be diſtended, and ſeparate one from the other, in that Place where they are deſtitute of thoſe Fibres, which, by the Aſſiſtance of the external Air, uſed to proportion the Compreſſure to the Reſiſtance of the internal Air: From hence thoſe Fibres which compoſed that Side of the Veſſel, muſt be neceſſarily forced thro' the enlarged Orifices of the external Coats, and occaſion ſuch a Tumour as we have been ſpeaking of. This, in our Opinion, ſeems to be one of the moſt ſatisfactory and juſt Accounts of the Formation of an *Aneuriſm*, by reaſon it ſo exactly correſponds with the Mechaniſm of the Parts. It is true, thoſe Authors who referred it to the Extruſion of the internal Coat thro' the Orifices of the external, by the repeated Efforts of the Blood, made a large Step toward the Diſcovery of the true Manner of its Formation. But ſince we have been obliged by the Curious and Inquiſitive of our Age for their many Diſcoveries, which are no leſs uſeful than ſurprizing, it ought to engage us (if they offer any thing that is capable of aſſiſting us in accounting for thoſe Phœnomena which occur) to explain thoſe Things that depend on their Improvements, according to what they have advanced, without having recourſe to what is purely Conjecture, as our Predeceſſors were obliged to do, by Reaſon they had not the Advantages which we at preſent enjoy. This Hypotheſis of the Formation of an *Aneuriſm*, may enable us to give a rational Conjecture of the Oſſification of an Artery, in that Part which has been dilated, and which never returns exactly to its firſt Dimenſions. This has been accounted ſo difficult to explain, that few Authors have attempted it; however thoſe who have, are of Opinion, that it muſt be effected one of theſe two Ways: The firſt is, that the ſaline, pungent, and moſt exalted Particles of the Blood, penetrating the leſſer Poroſities of the Fibres of the Tunicle of the Artery, mingle themſelves with its nouriſhing Juice, and by that Means contribute toward its Oſſification. The other Way they have aſſigned is, that the Blood which maintains the *Aneuriſm*, being in a continual Fermentation, does, by its Motion, increaſe the Heat of the Part, which inſenſibly exſiccates and hardens the dilated Fibres, by diſſipating and rarefying their Humidity. This Opinion is fortified (ſay they) by an Obſervation that the Aorta is frequently oſſified in old People, at its Exit from the left Ventricle of the Heart. Theſe Opinions, how pleaſing ſoever they may be to ſome, do not ſeem to be altogether ſatisfactory; for which Reaſon, we ſhall endeavour to account for it, by confining ourſelves to that Idea we have of the Structure of an Artery, ſeeing we conceive it is capable of furniſhing us with the moſt ſolid and beſt grounded Notions for ſolving this Phœnomenon. The Structure of theſe Tubes (which ſeem to be the moſt proper and convenient for performing that Office the Author of Nature has deſigned them for) by Reaſon of the Cloſeneſs and Contiguity of their Fibres, and other Parts, of which they are compoſed, appear to be ſome of the moſt denſe and compact of any in the Body, and are ſtill capable of being rendered more firm, by the Admiſſion of proper Particles, ſeeing their Hardneſs or Laxneſs is owing to the more or leſs firm Coheſion of the Parts. Conſonant to this, we conceive the Oſſification to be effected: For while the internal Coat was ampliated by the expanſive Motion of the included Air, its Pores muſt be ſufficiently enlarged, to entertain thoſe Particles of the Blood, which enjoyed ſuch a Figure and Magnitude, as rendered them capable of inſinuating themſelves thereinto; where they ſoon engage themſelves with other Particles, whoſe Figure intitled them to a mutual Correſpondence: They obliged them to recede, and afford them ſufficient Room to lodge themſelves in; by which Means the Thickneſs of the Artery muſt be neceſſarily increaſed in that Place, and the firm Coheſion of its Particles muſt be ſuch, by the continual Preſſure externally, as will afford it a ſufficient Tenſneſs to reſiſt the reiterated Efforts of the internal Air and Blood, and give it ſuch a firm compact Subſtance, as, to external Touch, may make it appear perfectly Oſſified. It is to be obſerved, that what has been mentioned hitherto, has only had reſpect to a true *Aneuriſm*, a falſe one deriving its Original from a total Rupture of the Tunicles of an Artery; by which Means the Blood extravaſates, and lodges in the Interſtices of the Muſcles, where its putrefactive Principle being ſet at Liberty, it begins to foment and diſplay its miſchievous Qualities, which is ſometimes ſucceeded by the evident Signs of a Gangrene. In ſome ſuch Caſes as theſe are, its Progreſs may be happily ſtopped, and a Cure effected, by timely making an Inciſion thro' the Teguments, to lay the Artery bare, and making a Ligature on it: But if by Reſpect of its long Continuance, it has occaſioned a Mortification of the Part, the Surgeon muſt be obliged to extirpate the Member, if he propoſes to effect a Cure.

OBSER-

OBSERVATION IX.

Of a Collection of Matter in the Right Cheek, which eroded the Salival Duct.

A YOUTH about 15 Years of Age, by ſome unhappy Accident, received a Blow juſt underneath his right Ear, which in 2 or 3 Days was ſucceeded by a ſmall Tumour; However, by ſome common Applications, in a few Days, it ſeemed to be wholly diſperſed, and ſo continued, till ſoon after being expoſed to the Violence of bad Weather, it was again revived, and immediately extended itſelf over the greateſt Part of that Cheek, and ſome other continuous Parts. Means were made Uſe of for ſome Time, to ſuppurate it; at length one Part of it, about 2 Fingers Breadth from the Ear, which began to aſſume a conical Figure, was opened

pened by Cauſtic. The Matter which diſcharged on Separation of the Eſchar, ſeemed to be a ſerous Juice tinctured with Blood. This was dreſſed for ſome time methodically; but the greateſt Part of the Cheek ſtill continuing tumefied, ſeveral Cataplaſms were applied, in order to ſet at Liberty that ſtagnated Juice, which kept the Part ſo preternaturally diſtended: But the Event of this proved to be a Congeſtion of the moſt viſcid Parts of the Matter into ſeveral Places; which, altho' at ſome Diſtance, yet ſeemed to have a Communication with each other. Some of theſe, by their gradual Enlargement, obliged the Surgeon to open them by Cauſtic; while others, which were not arrived at ſuch an Extent, were opened by an Inciſion Knife only: But what was moſt obſervable, was, that about this Time the Ulcers diſcharged ſuch a large Quantity of limpid Juice, more eſpecially on Maſtication, (tho' indeed it ſeemed to be emitted chiefly from that where the Cauſtic was firſt applied) that the Patient was obliged to keep ſeveral doubled Cloths on his Neck and Breaſt, to abſorb that exceſſive Humidity, which, by continually diſtilling on thoſe Parts, might have proved very inconvenient. Sometimes the Diſcharge was ſo very conſiderable, that he was forced to change thoſe Cloths 6 or 7 Times a Day: But this was generally more or leſs, as the Action of the lower Jaw was more or leſs required. It was, without doubt, nothing more than an Eroſion of the *Ductus Stenonianus*, by the Corroſiveneſs of the Matter, which occaſioned That ſo large Expence of Juice: For to us it ſeems impoſſible it ſhould derive its Source from any other Cauſe; and with this our modern Writers, who have taken Notice of ſuch Caſes, ſeem to agree. But to return to our Caſe: This vaſt Diſcharge of the ſalival Juice continued between 2 and 3 Months: All the Re-

Remedies which were from Time to Time applied, contributing but little to the preventing its Expence, till the Ulcers were dreſſed with that ſtiptic and catheretic Lint elſewhere deſcribed. This it was which put the firſt Stop to its Effuſion, and dried up ſome of the Ulcers; tho' its Application occaſioned ſome Uneaſineſs in the Patient, by Reaſon it at firſt procured a little Pain. During the Uſe of proper Means, both internal and external, there were ſeveral little Inconveniencies occaſioned by the continual Diſtillation of this Juice from the upper Orifice between the Cuticula and Cutis, where it uſed to form itſelf, as it were, ſo many little Cyſts; which, on Diſcovery, were laid open, and ſoon healed by ſome deſiccative Medicines. Some Time after the large Diſcharge of Juice began to remit, the parotid Gland was obſerved to be conſiderably enlarged; which continuing for ſome Time, the Patient was adviſed to ſmoke Tobacco.

This, by Degrees, he accompliſhed; and during the Continuance of it, the tumefied Gland ſubſided, and the remaining Ulcers healed.

CHIRURGICAL REMARKS.

THE neceſſary Reflection on the admirable Contrivance of the Author of Nature in the Formation of the Glands, and their Manner of ſecreting one Fluid from another, which ſeems to conſiſt of very different Principles, cannot but be a very ſatisfactory Amuſement, which is ſufficient to engage the Thoughts of the Curious and Inquiſitive in This: And indeed ſome of thoſe who have cultivated this Part of Anatomy, have been ſo ſucceſsful in employing their Thoughts concerning theſe Things, and the Nature and Uſe of thoſe Juices which are found in the animal Body, that we are already capable of giving a far better Account of ſome Particulars, which before, for want of theſe Advantages, we could not form an Idea of. It is by theſe Means, the various Diſeaſes, which are occaſioned by the Diſorders of the Glands, or the Liquors they ſecrete, are to be accounted for, without having recourſe to thoſe curious Speculations, which being only proper to entertain the Fancy, may deſerve the Term of uſeleſs Curioſities. Among other Things which relate to the Structure and Secretion of the Glands, we cannot but take Notice of the commodious Diſpoſition of their peculiar excretory Ducts, which diſcharge themſelves of their ſeparated Juice. It is certain, notwithſtanding

ſtanding the Blood is propelled with great Velocity from the Arteries into thoſe little Tubes, which partly compoſe the Glands, and which are a Continuation of the former Arteries, when it arrives at that Place where it meets with Pores, which are ſo proportioned to the Magnitude and Figure of ſome of its Particles, as to be eaſily capable of receiving them, after they have engaged themſelves therein, their Motion forward muſt be very languid and dull, and only ſuch as is cauſed by the Preſſure of Particles of the ſame Nature coming behind them, did not Nature ſo diſpoſe the Courſe of thoſe Ducts, that when there is the greateſt Demand of any of theſe Juices, their Motion is aſſiſted by ſome other Means. This is evident in ſeveral Caſes, tho' we ſhall inſtance but in One, *viz.* Maſtication, in which Action of the lower Jaw, as there is a great Quantity of Spittle required, ſo by the Contrivance of Nature, the Glands and Ducts which convey it are conveniently placed, that when the Muſcles are performing this Action, they promote its Diſcharge. Thus the excretory Duct of the parotid Gland, paſſing over the Maſſeter, and thro' the Buccinator, muſt be conſequently ſo preſſed in the Contraction of the former, as to oblige its Juice to a ſudden Emiſſion. From hence that large Diſcharge of Liquor during Maſtication, in the Caſe abovementioned, where the Duct being eroded, as the Liquor continued to move briskly forward, when it arrived at that Part where its Tunicles were divided, it muſt conſequently make its way thro' the Aperture, and fall on the contiguous Parts: If the Juice happens to ſtagnate in any of theſe, or other Glands, the Trouble and Inconvenience it puts the Patient to, obliges the Surgeon to remove any Obſtruction in the Ducts, or whatever elſe may occaſion the Stagnation, and recover the Motion of the Fluid. This he accompliſhes by proper Intervals, and applying emollient diſcuſſive Medicines, which are qualified for ſetting at Liberty the ſtagnated Humour, by dividing the Coheſion of its viſcid Parts, and diſpoſing it to a State of Fluidity. We once ſaw this effected, by the repeated Application of a Cupping-Glaſs on a tumefied Gland, which had proved all other Means, that had been made uſe of, to be ineffectual: The Succeſsfulneſs of this Experiment, was undoubtedly owing to the Rarefaction of the included Air in its ſmall Veſſels, which by enlarging their conſtipated. Paſſages, and recovering the natural Conſiſtence of the ſtagnated Juice, diſpoſed it to re-aſſume its former progreſſive Motion, without any Interruption. To give a Reaſon how the Smoking proved ſo beneficial in the preceding Caſe, we ought to take Notice, that the Tumefaction of the Gland ſeemed to proceed from nothing more, than an Interruption of the Motion of the ſalival Juice; which, as it continued to move forward in its excretory Duct, when it arrived at that Part of it, where its Texture had been diſunited, and where it was probably obſtructed by ſome of the moſt viſcid Parts of the ſtagnated Matter, which adhered cloſely to the internal Sides of the Duct; it muſt neceſſarily embarraſs the Paſſage of thoſe Particles which came behind them. From hence, as the Obſtruction in this Part of the Duct could not at firſt hinder the regular Separation of this Juice in the Gland, its minute Veſſels muſt be neceſſarily ſo diſtended, as to occaſion ſuch an Enlargement of its Dimenſions. Now no ſooner had the Patient accuſtomed himſelf to this Method of taking Tobacco, but ſome of the moſt volatile Particles of the Smoke inſinuated themſelves into the excretory Duct, where they ſoon divided the firm Coheſion of the moſt viſcid Parts of the impriſoned Matter, and diſpoſed it to re-aſſume its ordinary Courſe. It has been obſerved by ſome Authors, that Wounds of the Cheeks have been ſometimes ſucceeded by an Emiſſion of a limpid Juice, more eſpecially in any Action of the lower Jaw, which has created no ſmall Trouble and Inconvenience: But this never happens, unleſs this Duct be divided, or one of thoſe which contribute to its Formation. The Caſe is taken Notice of by *Fabr. ab Aquapendente*; *Opera Chirur. Lib.* ii. *Pag.* 108. Where ſpeaking of Wounds of the Cheeks,

he expreſſes himſelf thus: *Quotieſcunque vulnera prope aures contingunt, glutinantur modo propoſito; ſed verſus aurem foraminulum anguſtiſſimum, vix occulis conſpicuum, apparet, per quod, potiſſimum ubi patientes mandunt, tanta copia exit limpidæ aquæ, quæ eſt veluti lacryma ab occulis emiſſa, et durat aliquando unum, aliquando duos menſes. Unde, et quomodo effluat, ego certe neſcio*[*].

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[*] Whenever theſe Wounds happen near the Ears, they are healed in the Manner propoſed: But there appears a very ſmall Hole towards the Ear, ſcarcely perceptible to the Sight, thro' which, eſpecially when the Patients eat, iſſues a great Quantity of limpid Water, reſembling Tears; and this Diſcharge continues ſometimes one Month, and ſometimes two. Whence and how this Fluxion proceeds, I own myſelf ignorant.

OBSER-

OBSERVATION X.

Of a Defect in Swallowing, which attended a Diſtention of the Fore-part of the Neck.

A BOY about 12 Years of Age, by I know not what Means, unhappily fell from a conſiderable Height, and violently diſtended the Fore-part of his Neck, which he was ſoon after ſenſible was ſucceeded by a Defect in Swallowing. The Boy being carried to a neighbouring Apothecary, he ordered him a Bliſter to be applied on the Nape of his Neck; but this not giving entire Satisfaction to his Relations, he was committed to the Care of another Perſon, who, on Examination of the Parts, after ſome Time obſerved that a ſlight Compreſſure on the *Muſculi Sterno-hyoidei*, occaſioned an almoſt inſufferable Pain, and that the other Parts of the Neck were in a great meaſure exempt from it. Upon a due Conſideration of theſe Things, he thought he might very eaſily account for the Defect in Swallowing; whereupon he immediately directed the diſordered Parts to be embrocated with *Galbarat. Paracelſ.* which was repeated two or three Times a Day, for two Days; at the End of which, that Inconvenience which attended his Eating, was effectually removed, and the Boy continued well, without the Uſe of any other Means.

REMARKS.

AMONG the many and inſtructive Studies to which we ought to employ ourſelves, for the better underſtanding the admirable Contrivance of the Author of the Animal Oeconomy, the Contemplation on the natural Functions of an Animal Body, ſeems to be one of the moſt neceſſary; for, from hence it is we can only expect a true Notion how ſuch and ſuch Parts act for the Preſervation of each Individual; and this conſequently leads us into a Conſideration of thoſe Things, which, by confounding the Springs of this curious Machine, are capable of deſtroying that well-eſtabliſhed regular Order: For ſince the Diſpoſition and Contrivance of each particular Part, is ſuch as ſeems to be formed either for the Preſervation of the Animal, or Propagation of the Species, a ſlight Diſorder of any Part, muſt, in ſome meaſure, neceſſarily incommode the Whole. Thus, to inſtance only in our above-mentioned Caſe, where the Muſcles, whoſe Office it was to pull down the *Os Hyoides*, and Root of the Tongue, were preternaturally diſtended, a Defect in Swallowing enſued, which, had it not been ſuddenly removed, muſt have neceſſarily occaſioned an univerſal Diſorder. Now, after the Aliment is ſufficiently comminuted by the *Dentes Molares*, its Conveyance down the *Gula* to the Stomach, muſt be aſſiſted by the Action of ſeveral Muſcles, which are conveniently ſituated for this Purpoſe; as thoſe of the Tongue, *Os Hyoides*, *Fauces*, and *Oeſophagus*; all which, by performing their ſeveral Actions of elevating ſome Parts, and depreſſing others, very much contribute to it: But the pulling down the *Os Hyoides* and Root of the Tongue, chiefly depending on the *Muſ. Sterno-hyoidei*, that the Aliment might be the more commodiouſly protruded over the *Epiglottis* into the *Gula*, could not be performed but with a great deal of Difficulty, by reaſon theſe Muſcles had ſuffered ſo great an Extenſion: From hence this Faculty became neceſſarily depraved. The moſt methodical Way to effect a Cure in ſuch a Caſe as this is, muſt be certainly owned to be that which is capable of recovering the Tone of the diſtended Fibres of the Muſcles; becauſe they are at once diſpoſed to re-aſſume their natural State, by retrieving them from their former Indiſpoſitions. This was very well accompliſhed, by the Remedy mentioned in the Relation of this Hiſtory; which, as it conſiſted of Particles, which were capable of inſinuating themſelves thro' the Pores of the Part, and conſtringing the extended Fibres by its aſtringent Quality, we might very well ſuppoſe it proper for producing ſuch an Effect.

OBSERVATION XI.

Of a Ganglion on the Back of the Hand.

A GIRL about 13 Years of Age, had, for near a Twelvemonth, complained of a hard painful Tumour, much about the Bigneſs of a large Hazel Nut, which was ſituated on the *Metacarpus* of her left Hand. This ſhe firſt diſcovered ſoon after a violent Diſtenſion of the Part, which a little before ſhe had procured, by endeavouring to lift a heavy Weight: In the mean Time the Colour of the Skin did not ſuffer the leaſt Alteration; tho' the frequent acute intermitting Pains, with which ſhe was afflicted in the Part, incommoded her for doing any Buſineſs with that Hand. Means had been made Uſe of for ſome Time to diſcuſs the Tumour; among other Things, was applied that-ſo-much-celebrated Plaiſter *de Ran. cum Mercur.* but without Succeſs; whereupon an Inſtrument was procured, which was framed of Box, ſomewhat reſembling a *Ferula*, in the Head of which was contained a Quantity of Metal, which made it the more ponderous. With this the Tumour was ſtruck two pretty ſmart Blows, which cauſed it to ſubſide in a great Meaſure immediately. After which, by the Application of *Emp. Diach. cum Gum.* and good Bandage, it was perfectly diſſolved in a ſhort Time.

REMARKS.

THERE are ſcarce any Tumours which affect a Human Body, that have cauſed ſo many unneceſſary Diviſions among our Writers, as this we have been now ſpeaking of; eſpecially when they have endeavoured to adjuſt its true Cauſe. However, ſince they are frequently the Conſequents of violent Diſtenſions, it may be neceſſary we give an Account how the Diſtenſion of a Part is capable of producing ſuch an Effect. In order to account for this Phœnomenon, let us obſerve that when the Tendon of any Muſcle is extended to a preternatural Degree, ſome of the Fibres of which it is compoſed, may be probably diſtorted or broken. Now ſeeing theſe are according to our Notion, capable of producing what is generally termed a *Ganglion*, we ſhall endeavour to explain the Method of its Formation from each. If the Fibres are only diſtorted, the Motion of the fluid Particles, which uſually part thoſe minute Channels, muſt be conſequently interrupted, which ſtagnating in the Tendon, will neceſſarily embarraſs the Paſſage of thoſe Particles which come behind them, by which Means the Fibres are obliged to recede laterally, and the Dimenſions of the Tendon in that Place muſt be ſo enlarged as to form a Tumour; but if the Diſtenſion ſhould cauſe a Diſſolution of the Continuity of any of the Fibres of the Tendon, the homogenous fluid Particles

ticles which they contain, muſt conſequently diſcharge themſelves from the Orifices of the Fibres, when they arrive at that Part where their unity is diſſolved, and there ſtagnate, till being propelled by Particles of the ſame Nature coming behind them, they muſt conſiderably enlarge the Diameter of the Tendon in that Place, by obliging thoſe parallel Fibres to ſeparate from the other, till its common inveſting Membrane is not capable of any farther Extenſion. Then it is the Tumour is obſerved to continue in the ſame State, without any viſible Increaſe, the Fluid being confined to ſuch a Cavity, as is eaſily capable of reſiſting its lateral Preſſure: However the Dimenſions may be ſo far enlarged, as to elevate the common Teguments, in that Place, above the Surface of the continuous Parts, and ſo occaſion ſuch a Tumour as we have been ſpeaking of.

OBSERVATION XII.

Of a Gangrene of the Foot and Leg.

A MAN about 30 Years of Age, after having been for a conſiderable Time expoſed to the Violence of a Northern Air, was ſeized with an unuſual pricking Pain in one of his Feet: This was ſoon after ſucceeded by a very large Tumour, which extended itſelf all along the Leg to the Knee. The Colour of the Part ſeemed to be ſomewhat pale, which was here and there interſperſed with reddiſh Streaks. The Pain he at firſt felt, beginning now to be more remiſs, an intenſe Coldneſs and *Stupor* affected all the tumefied Parts. In this Condition he continued a Day or two without any Relief; during which Time, his Leg and Foot became in ſome Places perfectly livid. Whereupon, after Scarification, which was performed in order to diſengage ſome of the ſtagnated Juices, and give free Liberty for the Medicines to operate; the Parts were fomented with a very ſtrong Decoction of ſuch Ingredients as were qualified for removing Obſtructions, and recovering in ſome meaſure the Heat of the Parts. After this had been for ſome Time continued, the Scarifications were dreſſed with a Solution of *Egyptiac* in *S. V.* made very hot, over which was applied a warm Cataplaſm, ſufficiently large to encompaſs the whole Member. In the mean Time Internals were not omitted, which were capable of removing thoſe feveriſh Symptoms which attended him, and reviving the depreſſed State of his Spirits. The ſame Method of Dreſſing was continued to the third Day, at which Time the Tumour appearing conſiderably ſubſided, the Scarifications were dreſſed with equal Parts of *S. V.*

and *Ol. Terebinth.* On the fifth Day there was an Apoſtumation diſcovered itſelf on the Inſide of the Leg, which being opened, a conſiderable Quantity of Matter diſcharged itſelf. After this had been digeſted with proper Medicines, which promoted large Suppurations, the better to relieve the Part from thoſe ſtagnated Juices, which in ſome meaſure hindered the Influx of the Blood and Spirits, it was deterged with *Tinct. Myrrhæ et Mel. Roſ.* However, during the Uſe of theſe Means, there were ſeveral ſmall Apoſtumations aroſe; ſome of which being opened, were cured by ſuperficial Applications. Others, which by the corroſive Quality of the Matter, were become ſinuous, would not be cured without the Uſe of a proper Injection, which, by removing thoſe viſcid Particles of the Matter that firmly adhered to the internal Sides of the Abſceſs, ſoon diſpoſed them to a Re-union, which was very well effected, by applying convenient Compreſſes.

Thus was this poor Man, who had undergone ſuch a Fatigue during his Indiſpoſition, perfectly recovered in leſs than two Months.

RE-

REMARKS.

IT is a certain Modification of the Blood, that gives it its Heat and Fluidity. In order to give a rational Account how any Extremity of Cold proves the efficient Cauſe of a Gangrene, it may be requiſite we make firſt ſome Remarks on thoſe Particles on which the Life of the Parts ſeem intirely to depend; becauſe it will inable us to account for ſeveral Phænomena which muſt neceſſarily occur in ſuch Diſcourſe. Now were we poſitive the Hypotheſis of the vital Flame would paſs without Cenſure, it would be almoſt ſufficient to engage us to comply with it, by reaſon it would afford us ſuch happy Reſolutions of ſeveral abſtruſe Appearances. However, ſince we are not well aſſured there is any ſuch Thing actually exiſtent in an animal Body, we ſhall confine ourſelves to the Conſideration of the inteſtine Motion and Preſence of the Principles of the Blood, which we are aſſured are ſufficient to maintain the Heat and Life of all the Parts of the Body. This inteſtine Motion, or perpetual Agitation of the Particles of the Blood, ſeems to be ſo neceſſary for the Continuance of that regular Order eſtabliſhed by the Divine Architect, that if at any Time it begins to be ſuppreſſed, the Part gradually loſes its Heat and Motion, till at length it is ſeized with a Gangrene. It is, without doubt, the moſt ſubtle and volatile Particles of the Blood, which ſerve continually to inſpire and actuate the other Parts, that by their perpetual Tendency to ſtagnate, would at once deſtroy its progreſſive Motion, and conſequently occaſion a Gangrene; for if by any Means, theſe active Particles of this Fluid ſhould become ſo diſſipated, concentered, or ſuppreſſed, as not to be capable of diſplaying their Influence on the other Parts, they muſt gradually loſe their Motion, and become a heavy unactive Maſs. This is evident from the Gangrenes which are occaſioned by the Extremity of cold Air, where the Parts no ſooner ſuffer the firſt Attacks by the frigorific Particles, but the moſt ſpirituous Parts of the Blood retire, during which they muſt neceſſarily affect the nervous Parts, which may occaſion thoſe pricking Pains the Perſon is at firſt ſenſible of. At the ſame Time the nitro-aerial Particles, which inſinuate themſelves thro' the Pores of the Part, are eaſily capable of fixing the unactive Fluid, which is at this Time deſerted by the moſt ſpirituous Parts: By this Means the Blood having loſt all its Activity, its Paſſages muſt be neceſſarily ſo embarraſſed, as to deny the Admiſſion of any more of this Fluid; from whence the Part ſoon ſuffers a Diminution of Senſe and Motion, which is ſucceeded by a Gangrene. And this, if a ſudden Stop be put to its Progreſs, uſually terminates in a Mortification, as the laſt

Actor in the Tragedy. Theſe Mortifications are moſt frequent in the Northern Regions, where poor People, by ſome Caſualties, have been expoſed to the cold Air, which always firſt effects the Extremities, as the Hands, Feet, &c. From what has been premiſed, we may obſerve that all animal Bodies, whoſe Subſtance abounds with Fluids, and thoſe contain a proportionable Quantity of volatile ſpirituous Particles, while they remain intimately mixed one with the other, the Fluids are defended from the Action of any frigorific Particles. Thus the Blood in a human Body receives no Injury from the cold Air, ſo long as it is invigorated with its active ſpirituous Parts, which maintain its Fluidity, and by which Means a continued Circulation is carried on. But when theſe Particles, by the Extremity of cold Air, are concentered, (the Veſſels and Teguments of the Parts not being ſufficient to defend them from its Action) the Blood remains in the Veſſels as an heavy unactive Maſs, the Part gradually loſes its Senſe and Motion, and at length mortifies. For the ſame Reaſon, fermenting Liquors, which contain a proportionable Quantity of ſpirituous Parts, are not congealed by Cold, ſo long as thoſe Parts diſplay their Activity, by maintaining a continued Fermentation: But when this begins to remit, it lies liable to the Injuries of the cold Air, which obliges its more ſpirituous Parts to retire to the Center, while the other Part, which is nothing more than an inſipid Phlegm, is conſequently congealed. This is confirmed by a notorious Inſtance (mentioned by Dr. *Sympſon*) of ſome *Hollanders*, who fiſhing for Whales in the Northern Seas, had their Wines all frozen by the Extremity of Cold. The Hoops being taken off, and their Wines uncasked, they were found congealed into Ice, which retained the Form of the Veſſels the Wines were put in. This Ice they perforated, and found about its Center a little Liquor of an Amethyſt-Colour, which was the pure balſamick Spirits of Wine concentered, and therefore incapable of being congealed. A Diſſolution of the Body of Ice by Heat, proved it to be nothing more than an inſipid Phlegm or mere Water of Wine. The ſame Author relates the Hiſtory of a Man, who being drunk at a Country Town, in returning home, his Partner left him on a Bridge, where, expoſed to the cold Froſt upon the hard Stones, he had his Lodging that Night. The next Morning he was found alive; but his Hands and Feet (the moſt remote Parts from the Fort of vital Heat, the Heart) were abſolutely mortified; grew black as Pitch, and were never reducible to Life or vital Heat again; and therefore were cut off. His Remarks on it are, "That it is probable if the Man had not been drunk, the Cold would abſolutely have killed him; but the Spirits of the Liquor fortified the vital Spirits againſt the total Subverſion thereof by Cold. It is obſervable, that thoſe Mortifications which ſucceed any

Extremity of cold Air does not emit ſo bad a Fœtor or offenſive Smell as thoſe which proceed from other Cauſes; for the frigorific Particles of the Air, which are as ſo many Wedges, ſo inſinuate and fix themſelves in the Pores of the Part, as to embarraſs or lock up thoſe putrefactive Ferments, for which Reaſon the Motion of the Principals being ſuſpended, ſuch fœtid Effluvias are not emitted as would have been the unavoidable Conſequent had it derived its Original from another Cauſe.

Some are of Opinion, that if the Nerves which diſpenſe the Animal Spirits to any particular Part, are obſtructed, that Part lies very liable to be attacked by a Gangrene; this Opinion they have endeavoured to confirm by the Diminution of Senſe and Motion the Part is incommoded with, to which as a Conſequent of the former, they have added an Interruption of the Influx of the Blood. Now could theſe Gentlemen have proved this muſt have conſequently attended an Obſtruction of the Nerves, they had at once given us a rational Account, how ſuch an Obſtruction might produce a Gangrene.

The Cauſes of Gangrenes, as generally deſcribed by Authors, are ſo various, that it cannot be reaſonably ſuppoſed we ſhould run thro' a particular Diſcourſe of each, which would neither be proper to inſert in theſe Remarks; upon which Account we ſhall only take notice, that we have obſerved that Gangrenes have ſometimes ſucceeded the Uſe of Epiſpaſtic

Plaiſters, when they have been applied to the Legs of Hydropic Perſons, to diſcharge the extravaſated Serum. In order to account for this Phenomenon, let us obſerve, that the Blood in ſuch Caſes is nothing more than an indigeſted languid Maſs, diluted and liquified with a vaſt Quantity of Seroſities, which diſengage themſelves from the Maſs of Blood, and ſtagnate in thoſe Parts, and ſo conſequently compreſs thoſe Veſſels whoſe Office it was to impart a ſufficient Quantity of ſpiritous Particles (if the Maſs of Blood had been capable of furniſhing them) to invigorate and animate the Parts, for which reaſon they lie very liable to be aſſaulted by a Gangrene as ſoon as any inconſiderable Cauſe offers itſelf. Thus a Bliſtering Plaiſter may cauſe it, by the Action of the cauſtic Salt of the Cantharides, which we conceive in ſuch a Caſe does not a little contribute to produce ſuch an Effect.

OBSERVATION XIII.

Of a Tumour which ſucceeded the Uſe of the Cold-Bath.

A Young Lad about 15 Years of Age, by the Fall of one of the Maſts of a Ship, received a violent Blow on the upper Part of his Shoulder, by which in a ſhort Time he was totally deprived of the Uſe of that Arm and Hand; ſoon after (the uſeleſs Arm not being confined to a Sling) by its pendulous Poſture, occaſioned ſo great a Relaxation of the Ligaments and Tendons of the Muſcles, which connect the upper Part of the *Os Humeri* to the *Scapula*, that the round Head of the upper Appendix of the former Bone ſeemed to be at leaſt half an Inch below the *Sinus* of the ſhort Proceſs of the latter: During the Uſe of ſtrengthening Plaiſters to the Joint, the Bone was often replaced with all the Eaſe imaginable; but to retain it there required a great deal of Judgment; however, to accompliſh it, the Arm was kept ſuſpended for a conſiderable Time together in a Scarf, by which Means the Head of the Bone ſeemed to be confined to its proper Seat, and the Ligaments and Tendons of the Muſcles were freed from the Weight which before kept them continually extended: But this Attempt not ſucceeding, he was ordered to make uſe of the Cold-Bath, in Hopes it might relieve him, by corroborating ſome of the diſordered Parts, and recovering the natural Tone of the relaxed Fibres. This was continued for ſome Time, but without its deſired Effect, tho' it occaſioned a Swelling, (as we have ſeveral Times obſerved) which aroſe on the Inſide of the Arm a little above the Elbow. After ſome Time, Part of the Matter which it contained, that was moſt fluid, diſcharged itſelf by a ſmall Apertion it made thro' the Teguments; the remaining Part, which was of a thicker

Conſiſtence, continuing till the Abſceſs was laid open by Inciſion. The firſt Dreſſing conſiſted of dry Doſſils only, to abſorb the ſuperfluous Humidity; after which the uſual Method in ſuch Caſes was made uſe of, till it was perfectly cured, which was in about 3 Weeks Time. Some Time after the Arm impoſtumated again, became ſinous, and at length tended to mortify, which gave the Surgeon ſufficient Encouragement to amputate it, which being done, he was ſucceſsfully cured, and ſo continued well.

REMARKS.

AMONG the various Inſtances of the ſurprizing Succeſſes which have been effected by the Uſe of the Cold-Bath in the moſt obſtinate Diſeaſes, we have frequently obſerved that after its Uſe has been continued for ſome Time, a Tumour has aroſe on ſome Part of the Body, which tho' frequently confined to a diſeaſed Part, yet we have ſometimes known it to ariſe where the Perſon has not been ſenſible of the leaſt Diſorder. By the Matter which has been diſcharged from theſe Tumours we may reaſonably ſuppoſe them to be formed by the gradual Aſſemblage of certain viſcid Particles, which when united ſeem to form a Matter of a pretty uneven Texture. This tho' we have for ſome Time propoſed to analyſe, yet we have never had Conveniency to effect, for which Reaſon we cannot give ſo ſatisfactory an Account of its Principles, notwithſtanding we may reaſonably ſuppoſe them to be ſuch as by their Union may form a pretty weighty Fluid; but how this ſhould happen to be ſeparated from the Maſs of Blood, and depoſited in ſome particular Part a ſuch at Time, is what we fear requires more Philoſophy than we are Maſters of: However, as we have That on our Side which we hope is ſufficient to protect us from Cenſure, we ſhall attempt it. In order to ſucceed in this difficult Enquiry, we ought firſt to examine what immediate Effect the cold Water has on our Bodies: Now, beſide the Diſorder it occaſions in the Spirits immediately on the Immerſion, it certainly conſtipates all the Pores of the Body, and by its lateral Preſſure, leſſens the Dimenſions of each particular Part, whoſe Diameter is chiefly owing to Fibres that are continually kept diſtended by proper Fluids; for at the ſame Time the Body is contained in the Water, as its Preſſure is greater on the Surface of all the Parts than that of the external Air before, ſo it muſt neceſſarily compreſs the Fluids, as they abound with Air, into a leſs Compaſs. Now after the Fluids are exempt from this violent Preſſure, by the Body's being removed out of the Water, the ſpringy Particles of the Air, which are intimately mixed therewith, are capable of exerting their Elaſticity, and expanding all the Parts of the Fluid till the Sides of the Veſſels recede to their former Diameters, or the internal Air is come to an Equilibrium with the External. By this Means we may reaſonably conceive, that thoſe Particles whoſe Magnitude or Figure render'd them incapable of a mutual Correſpondence with the Particles of the Blood, during its Preſſure, were obliged to aſſemble themſelves together, and ſo form larger Corpuſcles, which by reaſon of their Weight, were not capable of being buoyed up by that Fluid, but were gradually diſengaged from it, and precipitated into that Part, which thro' a Diſorder was moſt capable of receiving them; tho' if there be not any particular Part of the Body that ſuffers at that Time more than another, Nature without doubt expels it to that Place where it may be the moſt commodiouſly diſcharged. Now, notwithſtanding it may be poſſible to give a mechanical Account how the above-mentioned Bath is capable of removing ſeveral Diſeaſes to which a human Body is liable; yet we may reaſonably ſuppoſe the Diſorders it occaſions in the Spirits, on the ſudden Immerſion of infirm Bodies, does not a little contribute to the Removal of ſome: Add to this the Dread, Terror, and Affrightment wherewith it affects the Mind, and by which Means Nature is excited to act more violently in reſiſting That, which by being ſo very diſagreeable might produce ſome corporeal Damage. It is for this Reaſon aſſerted, that timorous and over-tender People receive the greateſt Benefit, eſpecially in Palſies, and ſome other Caſes.

OBSERVATION XIV.

A Man about 50 Years of Age had for a conſiderable Time been incommoded in his Buſineſs, by reaſon of an apparent Defect in his right Thumb, which when required to be extended with its Point againſt any Object of his Touch, it was immediately involuntarily contracted, which forced him to retain, what his then preſent Neceſſity obliged him to, betwixt the firſt Joint of the Thumb and the Fore-finger. This Inconvenience was at firſt probably cauſed by a violent Contortion of the *Muſ. extenſor. tertii in ternodii pollicis*, by a Gripe by the Hand of a ſtrong Man, on the outward Part of the Arm below the Elbow. The ſeveral Perſons attributed it to the putting his Hand alternately into hot and cold Water, his Buſineſs being ſuch (as he was a Barber) as required it; the Means he had made Uſe of for the remedying this Diſorder, were almoſt as various as the Perſons by whom preſcribed, notwithſtanding which he received no Relief from any: This cauſed him to fear the true Uſe of the Part was irrecoverably loſt; however, a Reflection on what ſeemed to be the moſt probable Cauſe of this Inconvenience, was ſufficient to authoriſe the attempting it, ſeeing among the great Variety of Medicines he had made uſe of, as they were oleous or unctious in themſelves, or conſiſted chiefly of ſuch Ingredients, there was not one which was capable of effecting a Cure; which conſiſted only in removing the Obſtructions of the Fibres of the diſordered Muſcles, and recovering their natural Tone, which the former Medicines did but the more relax; whereupon he was adviſed to hold his Arm and that Part where he was ſenſible of the greateſt Diſorder over the Vapour of *S.V.* when fired, once a Day, and to continue it for ſeveral Days ſucceſſively; but the Perſon's Buſineſs being ſuch as during the Uſe of Means obliged him to be ſome Miles diſtant from his Surgeon, this Attempt did not ſucceed ſo well as might have been otherwiſe expected.

We lately ſaw a Man who had a violent Blow given him on the Back of his Hand, which bruiſed the Extenſor of his middle Finger. From that Time the Finger could never be ſufficiently extended, but the contracting Tendon appeared hard and ridged on the Inſide of the Hand.

REMARKS.

AMONG the many Advantages which a judicious Perſon may receive, in order to render him capable of curing Diſeaſes, there is certainly nothing of greater Importance than a true Idea of their Cauſes; for, without doubt, he who endeavours to remove the moſt inſignificant Diſorder to which a human Body is liable, without acquainting himſelf with the Etiology, muſt either fail in his Attempt, or if it ſucceeds according to his Deſire, be incapable of giving a ſatisfactory Reaſon for his Practice: This it is which is certainly ſufficient to influence all ingenuouſly diſpoſed *Tyros* in this Art to the Study of this Particular, as it is the Baſis and Foundation on which a regular Practice is to be eſtabliſhed. Thus as the Contortion, which occaſioned a violent Diſtenſion of the Fibres of the Muſcle in the preceding Caſe, ſeemed to be the moſt probable Cauſe of the Diſorder, the Artiſt thought himſelf ſufficiently authoriſed to preſcribe thoſe Means which were capable of removing Obſtructions, and conſtringing the relaxed Fibres. Now that a Contortion, or Diſtenſion, of this Muſcle ſhould produce ſuch an Effect, is very reaſonable to ſuppoſe; for as it was then in ſome Meaſure deprived of the Power of contracting itſelf, ſufficiently to oppoſe the natural Force of its

Antagoniſt, the Top of the Thumb when fixed againſt any Subject, could not be kept as it were in an Equilibrium, but muſt be neceſſarily drawn down, the Force of the extending Muſcle not bearing a Proportion to that of the contracting.

The Practice of Surgery affords us ſometimes Inſtances of the Inconvenience of the Relaxation of one Muſcle, which neceſſarily occaſions a Contraction of its Antagoniſt; but this is in no Caſe more apparent than in that which is generally termed a wry Neck; where a Relaxation by Means of a Palſy, or otherwiſe, of one of the *Muſ. Maſtoidei*, gives Liberty to its Antagoniſt to contract itſelf, by which Means the Head is drawn to one Side: Now if it continues for ſome Time, the Fibres of the contracted Muſcle not being capable of being extended by that which is relaxed, aſſume a Rigidity and Stiffneſs, which is the Reaſon it is generally intitled to the efficient Cauſe of this Diſorder.

OBSERVATION XV.

Of a Sphacelated-Face, after the Meaſles.

A CHILD about 3 Years of Age, without any preceding Indiſpoſition, was attacked with ſome of the uſual Symptoms of the Meaſles, which on the Eruption began to remit. On Recovery from this Diſtemper, it was ſeized with an Inflammation of the right Cheek, Lips, and internal Parts of the Mouth, which by its gradual Increaſe, at length terminated in a Mortification. This firſt diſcovered itſelf externally, by a black Spot near the right Corner of the Mouth, tho' at the ſame Time ſome of the internal Parts of the Mouth were prefectly mortified, but had remained undiſcovered till it appeared externally. Thoſe Parts which were already mortified, and likewiſe thoſe that tended thereto, were ſcarified, and dreſſed with the following Mixture hot, often in a Day, ℞. *S. V.* ℥iij. *Ther. Venet.* ʒjm. The Parts were likewiſe often fomented with this following. ℞. *Summitat. Abſinth.* mij. *Hiperic. Scord. Centaur. Flor. Camæmil. ana. mj. coq. in aq. q. ſ. f. fotus. adde S. V. q. ſ.* but theſe Means proved unſucceſsful, for the Mortification continually increaſed, and ſuch was the Progreſs it made, that thoſe Parts which were gradually attacked, by the next Day became perfectly rotten, ſtinking, and cadaverous. Moſt of the ſphacelated Fleſh being cut away, the remaining Part was cauterized, which was reiterated ſeveral Times, till the Child, by its Struglings, made it appear that it affected he ſenſible Parts. Notwithſtanding all his, the Sphacelus extended itſelf lmoſt over the whole right Side of he Face, conſumed moſt of the inernal Parts of the Mouth, and rot ed the upper and lower Jaw-Bones, ll which Parts continually emitted ſuch a fœtid *Synonia*, that the whole Room was infected with its offenſive Miaſms: In ſhort, this miſerable Object died on the ſeventh Day, reckoning from the firſt Day the Inflammation commenced.

RE-

REMARKS.

FROM what has been related in the preceding Hiſtory, we may reaſonably infer, that the Meaſles were but an Effect of the ſpontaneous Endeavours of Nature to purify the Maſs of Blood from thoſe Particles, which by reſiding in the Body, were prejudicial to its Oeconomy. Now theſe Particles, which were probably of the volatile alkaline Family, were firſt conveyed into the Body thro' the cuticular Pores, or received by reiterated Inſpirations; which when they had inſinuated themſelves into the Maſs of Blood, ſoon deſtroyed the due Proportion of its Parts, confounded the Coheſion of its Particles, and gave Original to a vicious Fermentation. This violent Commotion and Confuſion of the Principles of the Blood excited that internal Agent, Nature, to evacuate the offending Matter. Part of this was expelled to the Surface of the Body, and occaſion'd thoſe little red Spots termed the Meaſles. Soon after theſe cuticular Eruptions, the Symptoms began to remit, and the Child ſeemed to be in a fair Way of Recovery; till the remaining diſproportionable Salts were precipitated into thoſe fungous ſoft Parts, and there being continually diluted, with ſuch a Quantity of the Fluid ſecreted by the ſalival Glands, they were made capable of diffuſing themſelves through the internal Parts of the Mouth; where by the Briskneſs of their Action, which was favoured by the lax Texture of the Parts, they ſoon corrupted the natural Juices, which like a corroſive *Menſtruum*, corroded, and as it were, cauteriſed the Fleſh and the Veſſels, and rotted the very Bones. It is nothing more than the Action of a corroſive lixivious Salt, that cauſes the quick Progreſs of ſome Gangrenes; ſo that in ſome Caſes, a Part ſhall be intirely mortified in a Day and Night's Time, by the Action of theſe Salts. We likewiſe ſuppoſe the Cauſe of the ſudden Mortification of a Carbuncle, and Parts continuous, may be accounted for, without having Recourſe to a malign or occult Quality. It is certain, that by mixing a proper Quantity of ſuch Salts with a convenient Fluid, and artificial corroſive Diſſolvent may be compoſed, which ſhall have ſuch an Effect as that abovementioned; ſo that the Corruption of a Part in ſuch Caſes ſeems entirely to depend on the Action of the ſaline Particles, which by deſtroying the natural State of the Juices, diſpoſes the Parts to grow black, fœtid, and attain the higheſt Degree of Corruption. And of this Opinion does the illuſtrious *Etmuller* ſeem to be, where ſpeaking of Gangrenes, he expreſſes himſelf thus: *Acida corroſiva non inducunt nigredinem mortificantem: Acria, viz. lixivialia omnimodum partis mortificationem & nigredinem inducunt, quæ ſubinde ulterius proſerpit dolore ardente; id quod ſimiliter fit in carbunculo, ubi etiam talis ſubitanda*

*tanda nigredo & mortificatio.** One might have thought that the reiterated Application of the actual Cauteries, with thoſe Means that were made uſe of, might have been ſufficient to ut a Stop to the Progreſs of the Mortification: But Experience has made it moſt certain when it happens in ſuch ſoft fungous Parts. Sometimes it is not to be overcome by Cauteries or any other Means. There is a very elebrated Author that very much recommends he actual Cautery in ſuch Caſes. *Hanc præro- ativam cauterium habet* (ſays he) *quod id, quod rruptum eſt, combuſtione auferendo, reliquam artem ſanam exſiccet, corroboret, & putredini eptam reddat: Adeo ut non tantum, quod nunc rruptum eſt, ſed etiam id, quod ſucceſſive cor- umpi poſſet, a putredine vindicet, totam putre- inis auferat radicem.*† *Thom. Fienus*, lib. 1. ap. 8. *de Caut.*

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* Acid Corroſives do not produce a Mortification: Sharp ivious Salts intirely promote one, which gradually extends ough the Violence of the Pain: This is what happens in a rbuncle, where ſometimes the Mortification is ſudden.

† The Cautery has this excellent Property, that in burning ay what is corrupted, it dries and corroborates the ſound Part, d renders it unapt to putrify: So that it ſaves from Putrifaction t only what is now corrupted, but what might corrupt here- er, by removing the very Cauſe of ſuch Putrifaction.

Observation XVI.

A MAN of about 30 Years of Age, ſoon after a violent Attempt to lift a heavy Burden, became very much indiſpoſed with an unuſual Pain in his left Side, Spitting of Blood, and Difficulty in Breathing ; ſome Time after a Tumour diſcovered itſelf on the left Side of his Neck, which at certain Intervals, as the Wane of the Moon, almoſt wholly diſappeared. In the mean time he made uſe of ſeveral Phyſicians Preſcriptions, but with very little Relief: At length he became aſthmatic to ſuch a Degree, that he was not capable of breathing, unleſs he ſate upright in his Bed, or continued ſtanding or walking. About this Time likewiſe the Tumour in his Throat increaſed very conſiderably, and in a few Days the Patient died, a it were perfectly ſuffocated. On Diviſion of the Teguments, to diſco ver the Riſe of that Tumour in his Throat, it at firſt appeared to be a Cyſt filled with coagulated Blood, which induced ſome to believe it was an *Aneuriſm*; but in proſecuting its Examination, Part of it was diſcovered to paſs underneath the left Clavicle; whereupon the *Thorax* being laid open to trace it to its Original, the laſt Lobe of the Lungs, or rather its inveſting Membrane (there being ſcarce the leaſt Footſteps of its proper Subſtance remaining) was found ſo vaſtly dilated with coagulated Blood and a little *Pus*, that it filled almoſt the whole Capacity of the Breaſt: Part of this prodigious Maſs had forced its Way underneath the left Clavicle, and produced that Tumour in the Neck: Beſide this, we obſerved the right Auricle of the Heart and Ventricle, with the *Arteria Pulmonaris*, to be very conſiderably dilated, and a ſmall Quantity of limpid Water lodged on the *Diaphragma*.

REMARKS.

IT is certain, that during that Interim of Time a Perſon endeavours to lift a heavy Burden, he at firſt draws in a ſufficient Quantity of Air to inflate the Lungs conſiderably; and ſo long as he continues the Attempt, expires but very little. By this Means the pulmonary Veſicles continuing to be inflated, the Artery and Vein, in conformity to the *Bronchi*, muſt be neceſſarily extended and divaricated, which muſt both lengthen and enlarge their Cavities: Now, as the Inſpiration is at this Time continued longer than ordinarily, a great Quantity of Blood muſt be conveyed from the Heart through the *Arteria Pulmonaris* into the Lungs, which not receiving its uſual Compreſſure in the Veins, by the Subſidence of the Lungs, to force it to the left Ventricle of the Heart, Expiration being for ſome Time ſuſpended, it muſt unavoidably ſo enlarge the Diameters of the Blood Veſſels, as to render the Lungs incapable of performing their Office regularly afterwards. This in the abovementioned Hiſtory, was confined to one Lobe of the Lungs only, where, as we have intimated, the Motion of the Blood being neceſſarily interrupted, it muſt unavoidably embarraſs the Paſſage of thoſe Parts which come behind it; from hence the Veſſels were ſo diſtended, as to occaſion a Diviſion of their Coats: This being ſo, after the Perſon expired, the Blood, which diſengaged itſelf from its Veſſels, muſt ſo alter the Tone of this Lobe of the Lungs, by compreſſing ſome of the *Veſiculæ Aeriæ*, as to indiſpoſe it for a regular Expanſion; from whence it muſt unavoidably occaſion an aſthmatic Indiſpoſition. Now, as the Quantity of Blood which was conveyed into this Lobe of the Lungs, was, for ſome time after the Commencement of this Diſorder, almoſt equal to the Quantity which continued its Courſe through the other Lobe, its whole Subſtance after ſome time muſt be little leſs than a prodigious Heap of coagulated Blood, which in our Hiſtory we have obſerved to be confined to the diſtended Membrane, though ſome Part of it, whoſe putrefactive Principles were ſet at Liberty, had aſſumed the Form of a whitiſh coloured *Pus*, and in Proceſs of Time, it would probably have all aſſumed the ſame Conſiſtence and Colour. That which next offered itſelf in proſecuting our Examination of the Parts, was the dilated Auricle, Ventricle, and Veſſel, which we ſhall endeavour to prove, was neceſſarily a Conſequent of the former; for after the inveſting Membrane of the left Lobe of the Lungs became ſo diſtended as to be incapable of admitting any additional flowing Matter, the other Lobe was not capable of opening a Paſſage ſufficient for all the Blood which was expelled from the right Ventricle of the Heart; for which Reaſon its Velocity muſt be neceſſarily impeded in thoſe Parts, which conſidering the Force of the Blood, muſt be certainly ſufficient to oblige any one to believe it was capable of enlarging their Diameters. The ſame Inconvenience we have ſometimes had the Opportunity to obſerve in diſſecting thoſe morbid Bodies in whom ſome Time before Death that Complex Action of Reſpiration was performed with Difficulty. Now it is certain, in order to the Paſſage of the uſual Quantity of Blood through the Lungs, they ſhould be inflated as much as naturally; but on the contrary, in thoſe that are afflicted with aſthmatic Indiſpoſitions, *&c.* the Enlargement of the Cavity of the Breaſt being but inconſiderable, the Quantity of Air admitted into the Lungs muſt be but little, ſeeing it always bears a Proportion to the greater or leſſer Dilatation of the Breaſt: From hence, that large Quantity of Blood, which was determined to paſs through the Lungs, muſt meet with ſome Obſtruction in its Paſſage, by reaſon of the Folds and Corrugations of the Veſſels, which muſt neceſſarily happen when the Lungs are not ſufficiently expanded. This Interruption of the Motion of the Blood in theſe Parts, we have already proved to be ſufficient to occaſion the Enlargement of the Diameters of thoſe Parts we have taken notice of; the Water in the Breaſt of this Perſon is what we almoſt always obſerve in diſſecting thoſe Bodies that die aſthmatic, which we ſhall take Opportunity to account for elſewhere.

Observation XVII.

Of a Wound of the Head.

A MAN of about 30 Years of Age, by the Fall of a Tile from a Houſe, received a large Wound on his Head, on which he immediately fell to the Ground, but was not attended with Vomitings as is ſometimes obſerved in theſe Caſes: The Wound was accompanied with a large Flux of Blood, which after the Head was ſhaved, and the Wound cleanſed, was effectually ſtopped by the applying a ſmall hard Doſſil of Lint to the Mouth of the divided Artery. This, by its Compreſſure, ſo reſiſted the Impulſe of the arterial Blood, as to deny its Effuſion. The remaining Part of the Wound was filled with dry Lint, over which was applied a Plaiſter, and the continuous Parts were embrocated with *Ol. Roſ.* After which a convenient Compreſs and Bandage was applied. Bleeding was at that Time omitted, in Conſideration of the Quantity loſt by the Wound. The next Day the Dreſſings being removed, the *Cranium* was diſcovered to be diveſted of its Teguments about the Breadth of a Sixpence; which Part of the Bone was covered with dry Lint to abſorb the Matter, and the contuſed Lips were dreſſed with this following. ℞ *Terebinth. Venet. Part* 1. *Balſam Arcei. Part* 2. *m.* Over the whole Head was applied *Emp. è Cym.* through which there was a Hole cut for the more commodious Application of each Dreſſing to the Wound. Care was taken that at the Removal of every Dreſſing, there was immediately applied a Stupe wrung out of a Decoction of proper Herbs, not only to prevent the Acceſs of Air to the Wound, but likewiſe to relieve the contuſed Lips. The ſecond Night a Clyſter was preſcribed, and the following Paregoric Draught: ℞ *Aq. Lact. Alex.*

Alex. ℥ii. *Ceraſ. Nig.* ℥i. *Syr. è Mecon.* ʒvi. *m.* This ſomewhat moderated the Hurry and Diſorder of the Spirits, and procured him a little Sleep. The Method in Dreſſing was not in the leaſt varied till the fifth Day, at which Time the Wound ſeemed ſufficiently digeſted, the Bone retaining its Colour, without the leaſt Alteration; whereupon it was ſtill covered with dry Lint; but the Wound was dreſſed with *Tinct. Myrr.* over which was applied Plaiſter, Compreſs, and Bandage, as before. This Method was continued to the tenth Day, at which Time the Bone appeared perfectly reinveſted with new Fleſh, and in a few Days more the Wound was ſufficiently incarned; ſo that by the only Application of dry Lint, and a Plaiſter, it was brought to a firm Cicatrix.

REMARKS.

IT has been the frequent Cuſtom of many Surgeons, eſpecially thoſe of the antienteſt Date, as ſoon as any Part of the *Cranium* has been diveſted of its Teguments, either to raſp the Bone, to give way to the ſmall Veſſels to ſupply it with fit Matter for the Generation of Fleſh, or to keep the Wound open till the Bone exfoliated. This Practice was ſo ſucceſsful, as to proſelyte the Opinions of ſeveral of the Moderns, who firmly maintained it, and endeavoured to extricate themſelves from ſome of the greateſt Difficulties their Cotemporaries had alledged againſt it. However, Experience makes it evident, that notwithſtanding the Cuſtom of the Antients (to whom we pay all juſt Deference) treating Wounds of the Head after their Method renders the Cure much more tedious, difficult, and uncertain; it is for this Reaſon moſt Artiſts at this Time ſolely confine their Intentions to the preventing the Alteration of the Bone, and accelerating the Incarnation of the Wound as ſoon as poſſible; to defend the Surface of the Bone from the Action of any aerial ſaline Particles, or thoſe which may be contained in the Matter. Mr. *Belloſte* has within theſe few Years uſhered into the World a ſmall Treatiſe, wherein he informs us of a Way to prevent the Exfoliation of diſcovered Bones, if they have received no Alteration; this he aſſures us he performs by piercing the Bone in ſeveral Places with the Pyramid of a Trepan; that ſo a Way might be given (ſays he) to the marrowy Juice, which thickening upon it, covers over the Bone in a little Time. Probably, that Gentleman might have good Aſſurance for what he advanced as to that Point; and had our Attempt been ſucceeded by ſo ſudden and proſperous Effects, we ſhould have had no Room left to doubt of the Integrity of the Author's Aſſertion. If but a ſmall Portion of the Bone be diſcovered, it may be dreſſed with dry Lint till it is re-inveſted with new Fleſh; for this not only abſorbs the undigeſted Matter for the firſt 3 or 4 Days; which if it were permitted to lodge on the Bone, if it partake of any corroſive Quality, would undoubtedly cauſe an Alteration of it; but likewiſe very much contributes to the preventing the Increaſe of fungous Fleſh. It is obſervable, that if the Air has a free Acceſs to the Bone by its being long and often expoſed, the ſaline Particles with which it abounds, do not fail to fix themſelves on the Surface of the Bone, and ſo corrupt it. That the Air abounds with ſaline Corpuſcles is moſt certain; but why they ſhould be moſtly ſuppoſed to be of a nitrous Nature, is not eaſily proved; though when our Writers endeavour to explain the Cauſe of the Alteration or Corruption of a Bone by the Action of the Air, they have ſtill Recourſe to its nitrous Particles, as if they were the only Actors in this Caſe: But conſidering with ſome Gentlemen the vaſt Quantity of fuliginous Vapours that are daily produced, and which abound with a volatile alkaline Salt, the ſame being likewiſe exhaled in large Quantities from the putrified Matter of animal and vegetable Bodies, we think it reaſonable to ſuppoſe, the Air abounds with Salts of this Kind more than any other. If this Opinion is granted, we ſhall find it no hard Matter to account for the ſudden Corruption of a Bone, by expoſing it to the Air; for it is certain, it is the Action of volatile or fixed alkaline Salts that cauſes ſuch an Alteration in all animal Subſtances.

Observation XVIII.

AN Old Gentleman of about 60 Years of Age, had for a conſiderable Time been troubled with a large *Polypus*, which had its Riſe from the upper Part of the Inſide of his Noſe; one large Branch of it was diſtributed to each Noſtril, though the greateſt Part of its Subſtance hung down on the *Fauces*. During the Time of its Increaſe, he was gradually deprived of his Hearing; ſo that after it had arrived to its Extent, he was not capable of receiving any Influence from the moſt violent Sounds, unleſs the Air was firſt ſtrongly agitated, very near thoſe Organs which were framed for its Reception. After ſome Time, the Trouble and Inconvenience it put him to, obliged him to have it extracted: This was very well effected, on which he perfectly recovered his Hearing, though thoſe

Sounds which violently agitated the *Tympanum*, as the Ringing of Bells, *&c.* were extremely troubleſome to him; but what was no leſs ſurpriſing, was, that on the Growth of the *Polypus* a ſecond Time, he was likewiſe deprived of his Hearing.

REMARKS.

SUCH is the inimitable Contrivance and Frame of the auditory Organs, which the divine Architect has ſeated commodiouſly for performing their united Office, that notwithſtanding the various Advantages we have received, which relate to their Structure and Manner of being affected by proper Objects, there is ſtill ſufficient Room to admit of new Diſcoveries, without which the Theory in ſome Meaſure ſeems to be incomplete; though at the ſame Time the Difficulty which muſt neceſſarily occur to thoſe Perſons, who, by their Diligence, endeavour to advance it, ought not to diſcourage them, till by their gradual Succeſſes they have obtained a juſt Idea of it. Upon this Account we thought it reaſonable to take notice how far this Senſe came depraved by the Impriſoning the Air in the *Meatus ad Aures*, which was occaſioned by the Occluſion of their Orifices, by the abovementioned fungous Excreſcence. It is true, theſe Inſtances are ſomewhat rare, though in the Writings of our Predeceſſors, we ſometimes find that the *Fauces* being ulcerated, or a Tumour poſſeſſing thoſe Parts, has been ſucceeded by ſuch an Effect. Now this Paſſage, which extends itſelf from the *Fauces* to the Barrel of the *Tympanum*, as *du Verney* calls it, is by him ſuppoſed as a Duct to convey aqueous Humours; while others have been of Opinion, it is chiefly formed for the Paſſage of Sounds through it to the Ears. This latter ſeems to be fortified by an Obſervation, that thoſe Perſons who hear with Difficulty, generally hold open their Mouths when they liſten attentively; but ſtill this not ſatisfying our Curioſity, by reaſon the former cannot be demonſtrated, and the latter would be of Uſe only in thoſe Perſons that are thick of Hearing, we may reaſonably ſuppoſe it is of ſome more extraordinary Uſe in the Animal Oeconomy. Now in order to frame a reaſonable Judgment, what this Uſe is, we ought to take notice that the undulating Air being collected in the *Concha*, in order to be tranſmitted through the *Meatus Auditorius*, though it be ſomewhat impeded by the ſeveral Inequalities in the Paſſage; yet its Impulſe on the *Membrana Tympani* muſt be neceſſarily ſo great, as to occaſion a Convexity on its internal Surface: This muſt certainly communicate a Motion to the internal Air, and oblige Part of it to retire into the aforeſaid *Meatus*. Now no ſooner does the firſt Impulſe of the external Air begin to remit, but the internal Air returns with a Force almoſt equal to that it received: By this Means the Action and Re-action of the external and internal Air is continued, which muſt undoubtedly occaſion a Vibration of the Membrane that ſeparates them, which is always more or leſs according to the Variety of Impreſſions made on it externally.

ternally. From theſe Premiſes, we may rationally conclude, that if the Orifices of the *Meatus ad Aures*, which open into the *Fauces*, are by any Means obſtructed, the external Air is not capable of impreſſing any tremulous Motion on that Membrane: For the internal Air being ſo impriſoned, as to render it uncapable of a Reflux, preſſes againſt the internal Surface of the Membrane, with a Force proportionable to reſiſt the Preſſure of the external Air; from hence thoſe Vibrations are unaccountably prevented, and the Membrane is kept in a conſtant *Equilibrium.* If a Perſon is by any Means unhappily deprived of the external Part of the Ear, he is obliged to ſupply the Defect by augmenting the Concavity, with his Hand or ſome proper Inſtrument, either of which conveniently applied, may be ſufficient to collect the undulating Air, in order to its Tranſmiſſion through the *Meatus Auditorius*.

OBSERVATION XIX.

Of a violent Contuſion of the Fore-Part of the Knee.

A Man of about 30 Years of Age, by ſome Accident, received a violent Blow on his Knee, a little below the *Rotula*, whereby the Fibres of that Tendon which is formed by the Union of thoſe that belong to the Extenſors of the Leg, was very much diſcompoſed. The Pain which he was at firſt ſenſible of, was very violent, which continued for ſome Time, though ſeveral Means were made uſe of to remove it. Soon after this he found it ſo much incommoded him in walking, that (to uſe his own Expreſſion) he could not ſupport his Body on that Leg, or draw it after him, when his Body was ſupported by the other. He was likewiſe attended with very great Difficulty in going up Stairs, or any other Aſcent. After ſome uſeleſs Applications had been continued near a Fortnight, he committed himſelf to the Care of a Surgeon, who on Examination of the Part, diſcovered that Part of the Tendon, which had been chiefly affected by the Blow, to be conſiderably relaxed; on which Account the *Rotula* was drawn ſomewhat out of its Place, by the Action of the *Rectus*, *Vaſtus externus*, *Vaſtus internus*, and *Crureus*. Beſide this, by the Preſſure of the Fingers, there was obſerved to be a gelatinous Subſtance lodged underneath the Tendon, which made the Part in that Place appear ſomewhat prominent. On a due Conſideration of thoſe Things, the Part was very well embrocated with *Galb. Paracelſ.* and a Plaiſter of 2 Parts *Paracelſ.* and one of *Cymin.* was applied; over which, juſt above the *Rotula*, was placed a Compreſs, with a Roller over the whole Part. The fourth Day the Plaiſter was removed, and all Things appearing as well as could be expected, the former Applications were continued: Theſe were a third Time repeated; after which the coagulated Juices ſeeming to be pretty well diſſolved, the *Emp. Stiʃticum Rub.* was applied, which after ſome Time compleated a Cure.

REMARKS.

IN order to be capable of giving a ſatisfactory Explication of the Accidents that attended that unhappy Blow on the Knee, we ought to reflect on the Uſes of thoſe Parts which were immediately concerned, and furniſh ourſelves with a competent Knowledge of their Structure: For by this Means we may ſolve thoſe Difficulties, which will neceſſarily occur according to the eſtabliſhed Rules of Mechaniſm. It is true, the human Body being looked on as a Machine which conſiſts of ſeveral Parts, if any of them are diſordered, we may eaſily collect which they are, by the Remiſſneſs or Non-performance of their Offices regularly; by reaſon they have a mutual Dependance on each other, to maintain that agreeable Order deſigned by the firſt Mover of the Springs, the divine Architect. Now the Inconveniencies that attended the Contuſion, we have ſhewed to be beſides a violent Pain, and Congeſtion of a thick viſcid Matter in the Part, a great Difficulty in Walking, and more eſpecially in getting up any Aſcent: As to the Pain, it was undoubtedly occaſioned by the violent Stroke which cauſed ſuch a Divulſion of the Fibres, as muſt neceſſarily procure a Diſaffection of the Soul, and this will more evidently appear, if we do but conſider that the Soul having a particular Intereſt in all the Parts of the Body, if the Union of any be by any Means diſſolved, the Soul muſt be certainly concerned, by reaſon the Nerves convey the Impreſſions they receive to it. That Congeſtion of a viſcid Matter in the Part was in ſome Meaſure a Conſequent of the Diviſion of ſome of the Fibres, which then were rendered capable of giving Liberty to their Contents to diſengage themſelves; though we ſuppoſe that which contributed chiefly to it, was Part of that mucilaginous Liquor which before ſerved for lubricating the Extremities of the Bones. Now the Mixture of theſe two Juices, we are pretty well aſſured, qualifies them for forming ſuch a gelatinous Subſtance. It is probable, if convenient Means had not been made uſe of, that were capable of inſinuating themſelves through the Pores of the Part, and diſuniting that firm Cohæſion of thoſe viſcid Particles, by their long Continuance there, they might have proved of very ill Conſequence, by preventing the Recovery of the Fibres to their natural Tone. But now the Embrocation that was made uſe of, beſide diſſolving that congeſted Matter in the Joint, was qualified for correcting the Laxity of the diſtended tendinous Fibres, by reaſon it conſtringed, and as it were cloſed up their enraged Vacuities; by which Means they were capable of expreſſing thoſe Particles which were lodged in their Interſtices. It is certain, that at the ſame Time any liquid Preparation that par-takes of ſuch Qualities as that abovementioned inſinuates itſelf into the little Cavities of the diſordered Fibres, it gently forces them to moderate Contractions, and ſo conſequently rectifies their too lax Tone; and this Faculty it muſt neceſſarily exert on thoſe Parts, whoſe Exigencies are greateſt, becauſe thoſe that retain their natural State, are not ſo fitted to receive, or at leaſt be affected by them. The Difficulty in walking that was obſerved to enſue on the Diſorder of the Parts, may be in a great Meaſure collected from what we are going to advance in relation to the Inconvenience the Patient was ſenſible of, in endeavouring to get up any Aſcent. Now in order to ſucceed in the Enquiry of this difficult Phænomenon, we ought to remark, that all ſuch Motions of the Body, and ſome others, ſeeming chiefly to depend on the Action of the Extenſors of the Leg, if theſe Muſcles are ſo diſordered, as to act with a great deal of Difficulty, the Perſon muſt be ſenſible of a very great Inconvenience during the Time he attempts to put the in ſuch a Motion. This is made evident by taking notice, that when we place one of our Feet on a Step in order to aſcend it, the Leg being then in a contracted State, thoſe Muſcles we juſt now mentioned are obliged to be diſtended very much, during the Time the Breaſt is advanced forward, to throw the Centre of Gravity on the Step the Foot reſts on. After this the Leg is to be extended, which requires a violent Action of thoſe Muſcles, in order to raiſe that Leg which had its reſt on the lower Plain; though perhaps the Extenſors of the former contracting themſelves, communicate a Motion to the upper Parts, and ſo contribute ſomething to the Raiſing the Body. Upon this Account we may reaſonably ſuppoſe, that the Tendon of thoſe Muſcles, whoſe Action was ſo much required, being conſiderably relaxed, the Muſcles were rendered incapable of contracting themſelves with a ſufficient Force, to keep the Parts of the Body in an *Equilibrium.* Thus likewiſe a Perſon that labours under ſuch a Diſorder, cannot ſtand upright without a great deal of Difficulty, if his Feet are placed near each other, and not at all on the Leg affected without Support; for when the Body is in an erect Poſture, all its Parts are in an equal Poiſe; thoſe on each Side counterballance one another, as likewiſe thoſe on the fore and hind Parts: Upon this Account it is that when the Line of Direction is determined to take its Riſe from another Point than that which before being ſupported kept the Body erect, ſome Muſcles muſt act during that Time more violently, to recover the *Equilibrium* of all the Parts; and, that the Line of Direction, as before, may paſs betwixt the two Legs: But when we ſtand on one Foot only, the Line of Direction has but a very ſmall Baſis, for which Reaſon the Action of the Muſcles of the Leg and Thigh will be almoſt conſtantly required, becauſe the Body will be ſtill inclining to one Side or the other. For this Reaſon, if any of the Muſcles are ſo diſordered, as to be incapable of contracting themſelves with a ſufficient Force to regulate thoſe Poſtures, the Machine muſt unavoidably fall. Sometimes Perſons have been ſo unhappy as to have the *Patella* fractured by a Fall, Blow, *&c.* but if this happens tranſverſe, all thoſe Accidents we have deſcribed are very much aggravated; for that Bone, which ſeems to be an Enlargement and Oſſification of the Tendon in that Place, when it is divided after the Manner we have mentioned, the upper Part of it muſt be drawn out of its Place very conſiderably, by the Action of thoſe Muſcles to whoſe Tendon it is connected, and which by theſe Means are rendered uſeleſs: Upon this Account it is the Extenſion of the Leg will be impoſſible, as likewiſe Standing, Walking, *&c.* though we once ſaw a Gentleman, who by a Fall, on a Stone, whoſe ſuperior Part was pretty prominent, fractured the *Patella* tranſverſely; and notwithſtanding the Parts of it were immediately ſeparated from each other a Finger's Breadth, yet they ſeemed ſo to adhere by ſome membranous Filaments, that they continued without any farther Separation: After ſome Time, proper Means being made uſe of, and he confined to his Bed, he ſo recovered the Uſe of the Part, that in ſeven or eight Week's Time it did not much incommode him in walking, although the divided Parts of the Bone could be brought no nearer to each other; ſo that Nature was obliged to ſupply that Diſtance with an intervening *Callus*.

Observation XX.

Of a Boy cut for the Stone.

A Boy about 8 Years of Age, after having been for a conſiderable Time fatigued with ſome of the uſual Symptoms of the Stone in the Bladder, was at length committed to the Care of a Surgeon, in order for Cure. He being ſearched, and a Stone diſcovered, ſome important Circumſtances were regulated, and the Artiſt proceeded in order to extract it. To effect this methodically, the Patient was placed on a Machine, which is contrived for that Purpoſe, that the Perſon may lay on it commodiouſly with a Pillow under him. His Hands being tied to his Feet, a Servant on each Side, with one of their Hands placed on each Ancle, fixed his Heels to his Breech, and with the other kept his Knees aſunder. The Patient being in this Poſture, the Operator took the Top of the *Penis* betwixt the Thumb and two Forefingers of his left Hand, and gently extended and pulled it upwards; then ſlipping the Prepuce a little back, and ſqueezing the Glans to open the *Urethra* with his other Hand, he gradually thruſt in the Oiled Croſs Staſe, till its Point came near the Neck of the Bladder: At which Time, by giving it a half Turn, he cauſed it to ſlip under the *Os Pubis* into the Bladder. This being done, the Staſe was committed to the Care of an Aſſiſtant, who by bringing its End near the Belly, cauſed its convex Part to preſs ſtrongly on the interior Surface of that Part of the *Urethra*, which lies under the *Perinæum*; by which Means the Teguments were in that Place raiſed above the Surface of the continuous Parts. The *Scrotum* being drawn up by a Servant, the Operator, with the Thumb and Forefinger of his left Hand, fixed the moſt eminent Part of the Staſe to the left ſide of the *Perinæum*,

Perinæum, and with his Biſtoury made an Inciſion along its Furrow, betwixt his Thumb and Finger. The Length of the Inciſion was regulated by his Judgment of the Magnitude of the Stone. Before the Removal of the Stafe, he ſlipped the Tip of the Gorget into its Furrow; and all the Time the Stafe was withdrawing, continued to keep them engaged by puſhing forward the Gorget, and making it follow the Motion of the Stafe. The Gorget being conveniently placed, the Forceps were introduced over it into the Capacity of the Bladder. On the Removal of the Gorget, Search was made after the Stone, which being ſoon diſcovered, it was dextrouſly extracted. After this a Quantity of *Worm. Ol. Hiperici* was injected, and a Stupe applied. Upon the Removal of this, the Wound was dreſſed with Doſſils dipped in warm *Linimen. Arcei, & Terebinth.* over which were applied Pledgets armed with the Liniment, a Plaiſter of *De Minio*, and a Bolſter kept on with the Bandage, called the double T. The next Dreſſing the former Applications being continued, the contiguous Parts were embrocated with *Spirit. Vin. Camph.* A few Days after the *Scrotum* began to be very much tumefied; but upon the Application of a Cataplaſm of *Ther. Lond.* it ſoon ſubſided. About 10 Days after the Operation, a Bolſter of Cloth was applied on each Side of the Wound, to oblige its Lips to come cloſe to each other, that the Re-union might be the ſooner and more commodiouſly effected. The ſame Dreſſings were continued till the Wound was incarned, and brought into a very narrow Compaſs; only the injecting the Oil was omitted. All Things appearing in ſo good a Condition, the Cure was compleated by the Application of Epuloticks, and the Boy continued perfectly well.

REMARKS.

SINCE Cutting for the Stone has been, and ſtill is looked upon to be one of thoſe Operations that requires the greateſt Skill and Dexterity in the Artiſt, we need not wonder, if ſome Perſons, by their diligent Applications, have endeavoured to advance it to a higher Pitch than their Predeceſſors; though the little Number of the Followers of thoſe that attempted it, ſince *Celſus* and *Joannes de Romanis* invented and deſcribed the *Apparatus minor* and *major*, have never been ſufficient to recommend the Methods they have preſcribed. What Succeſs the lateſt they have heard of may meet with in the World, we are not yet ſenſible of; though according to the beſt Accounts we have received, it has been very much careſſed by ſome *Pariſians*. Thoſe Ways we juſt now mentioned, whoſe long Continuance, and general Approbation, have been ſufficient to eſtabliſh them in ſeveral Nations, by regulating ſome little Circumſtances which belong to them according to the Variety of Subjects, we ſuppoſe may be practiſed with as great Succeſs as any yet known; for, not to mention how commodiouſly the Part offers itſelf, in order for the better Performance of the Operation, the very Structure and Diſpoſition of it is ſuch, as ſeems to be ſufficient to entitle it to a Preference before any other it is true, we are pretty well aſſured, there are ſome Things which have been practiſed, that relate not only to the Operation, but likewiſe to the Manner of Dreſſing, that ſeem to require a Regulation, by reaſon they are attended with ſuch unhappy Accidents as very much prolong the Cure, if not totally prevent it. The firſt we ſhall take notice of, is the Uſe of the *Dilator*, which as it ſo violently diſtends, lacerates, and diſcompoſes the regular Order of the Fibres and capillary Veſſels, by forcing them into a foreign Situation, muſt unavoidably occaſion an Interruption of the Motion of the Juices; from whence an Inflammation generally ſucceeds; and if proper Means are not immediately made uſe of, perhaps a Mortification: Beſide this, the Suppuratives which are to be made uſe of, and continued for ſome Time to open the Orifices of the Fibres and Veſſels, in order to give Liberty to their ſtagnated Juices to diſengage themſelves, very much contribute to retard the Cure. Though if by reaſon of the Largeneſs of the Stone, the Uſe of the Dilator be abſolutely neceſſary, as perhaps in ſome Caſes it may, the Artiſt is always very circumſpect not to uſe Digeſtives too long, but to have recourſe timely to the Uſe of ſuch ſpirituous Medicines as are enriched with a moderate aſtringent Force, to correct the too great Laxity of the Fibres of the Parts, and in ſome Meaſure to recover their natural Tone; for by this Means, he not only removes that Extraverſion of the Lips of the Wound, which is frequently obſerved, but at the ſame Time corrects the offenſive Smell of the Matter, and leſſens its Diſcharge. Likewiſe the continued Uſe of too many Doſſils, proves always very inconvenient; for they certainly in a great Meaſure prevent the Conſolidation of the Parts; upon which Account the Urine does not re-aſſume its ordinary Courſe, but diſcharges itſelf continually by the Wound, in the Sides of which the Salts do not fail to fix themſelves, and ſo occaſion ſuch a Calloſity, as is always obſerved in a Fiſtula, in which it generally terminates. Beſides this they often cauſe ſuch an Irritation of the Parts, and ſo block up the Paſſage of the ſeparated Matter, as to occaſion Inflammations, Abſceſſes, *&c.* But above all that we have hitherto ſaid, or can ſay upon this Subject, the injecting large Quantities of *Ol. Hyper.* immediately after the Operation, and continuing it for ſome Days, as we have oftentimes ſeen, is to us the moſt unaccountable; for in the firſt Place, we cannot imagine what Advantage can be propoſed by it. If it be alledged that it is a Vulnerary, and ſo muſt conſequently contribute to the Re-uniting the divided Parts; we anſwer, that though *Hyper.* be a Vulnerary itſelf, and conſiſts of ſuch noble balmy Particles, that when ſet at Liberty, and afterward engaged in any proper *Menſtruum*, may form a Medicine, whoſe extraordinary Qualities may entitle it to a Preference before ſeveral others; yet when thoſe temperate volatile oily Salts, with which it abounds, become ſo ſheathed, and locked up by the

Viſcidity of the Oil which is made uſe of in ſuch Caſes, it can contribute little or nothing to the Union of Wounds: Beſides this, all the World owns that Oil is of a direct contrary Quality: If thoſe Gentlemen, who approve of its Uſe, do it merely upon the Account of its promoting Digeſtion, they may eaſily acquaint themſelves, that it effects it by relaxing the Fibres and capillary Veſſels of the Parts, and enlarging their Orifices; for by this Means, the Juices they contain, have an Opportunity of diſcharging themſelves, which mixing with Part of the Oil that is lodged among the Membranes, muſt in a ſhort Time form ſuch large Quantities of Matter, as by its conſtant Diſcharge, may be ſufficient to inform any Perſon, hat the natural Tone of the Parts is utterly deſtroyed. There are ſome other Methods of performing this Operation beſide thoſe we have aken notice of, as that deſcribed and firſt praciſed by *Peter Franck*, generally termed the High Operation, the Performance of which Dr. *Liſter* ikewiſe mentions in the Philoſophical Tranſacions. The ſame Author, in his Journey to *Paris*, nforms us of a new Way practiſed by one *Pere Jaques* a Monk, which we wiſh he had been more particular in deſcribing: However, he ells us, that he cut in the *Hotel Dieu* ten in eſs than an Hour's Time; the third Day all were hearty and without Pain but one. His Methods are by the grand and little Appareil; n both he boldly thruſts in a broad Lancet, or tilleto, into the Middle of the Muſcle of the Thigh, near the *Anus*, till he joins the Catheter or Staſe, or the Stone betwixt his Fingers; then he widens the Inciſion of the Bladder, in proportion to the Stone, with a Silver oval Hoop; if that will not do, he thruſts in his Forefingers and dilates it; then with the Duck's Bill he draws it out. The ſame Operator cut eleven at the Hoſpital *La Charité*, whereof one died, and being diſſected, it was found he had his Bladder pierced in four or five Places, alſo the *Muſculus Proas* ſadly mangled, and the left *Veſicula Seminalis* cut. Since our Author's Return, he received a Letter from a very learned and induſtrious young Gentleman: Part of it related to this Matter, which we ſhall tranſcribe.

" *Paris, Auguſt* 2. 1698, *Pere Jacques*'s Reputation mightily ſlakens. Out of 45 which he cut at the *Hôtel Dieu*, but 16 of them ſurvived; and of the 19 in *La Charité* but 11. He has practiſed at the Hoſpital at *Lyons*, but it is ſaid with worſe Succeſs than at *Paris*. I am ſenſible he has got Abundance of Enemies, which makes me very often queſtion what I may hear ſaid of him. Dr. *Fagon*, the King's Phyſician, told Dr. *Tournefort*, that he had cut 7 at *Verſailles*, and that 6 of them are alive, and as well as if never cut. The Perſon that died, was ſo diſtempered, that he was not expected to live; and it was thought, if he had not been cut, he had not lived ſo long. The Surgeons have a great Mind to cry down the Man, though they practiſe his Method: For *Marſhal* (who is reputed the beſt of the Surgeons in *Paris* for this Operation) has ſince cut after *Pere Jaques*'s Manner, only with this Difference, that *Marſhal*'s Catheter was canulated. *Le Rue*, the ſecond Surgeon of the Charity Hoſpital, cut after the old Manner, at the ſame Time when *Marſhal* cut *Pere Jaques*'s Way, but had not ſo good Succeſs as *Marſhal* had; for all that *Marſhal* cut are alive and well, whereas the other loſt one or two of his Number. Beſides, thoſe that lived, were not ſo ſoon cured, no, not by a Month or 6 Weeks."

Among the various Methods of cutting for the Stone that we have yet met withal, we never found any that came nearer this of *Jaques*, than that mentioned by Dr. *Wittie* in his *Fons Scarb.* where he relates the Hiſtory of a Perſon in whom the Inciſion was made through the *Gluteus major*.

OBSERVATION XXI.

Of a very large Tumour in the Throat of a Woman, that ſuffocated her.

A Woman near 57 Years of Age, that for ſeveral Years had had the ſatisfactory Enjoyment of a great Meaſure of Health, one Morning complained of a ſmall Swelling on the Fore Part of her Neck, juſt above the *Sternum*. All the Account ſhe could give of the Cauſe of it, was, that the Night before ſhe had a very pleaſant Dream that made a very great Impreſſion on her, which was of her deceaſed Husband's coming to her, and chucking her under the Chin. The Inconvenience the Tumour put her to before it came to a conſiderable Bigneſs, was not great, though the almoſt continual Reflection on her imaginary Husband's kind Dealing with her, and attributing the

Cauſe of the Swelling to that, made it much the more troubleſome. After ſome Time, it became ſo conſiderably large, extending itſelf over the Fore Parts of the Neck, and to the left Side as high as the Ear, that it very much incommoded her in Eating, Drinking, and Breathing; in a few Days after which ſhe expired. The Caſe being very uncommon, or perhaps never before obſerved, attended with ſuch Circumſtances, ſeveral Surgeons were ſollicitous of being preſent at the Opening of the Tumour; which at length being complied with by ſome Perſons who before oppoſed it, the Teguments were divided and removed, which diſcovered a prodigious Maſs of glandulous Fleſh, which appeared to be very compact and firm, the upper Part of it being diſengaged from thoſe Parts to which it was connected, and a conſiderable deal of it diſlodged from underneath the left Clavicle; the only Part of it that remained unſeparated, was, that which ſeemed to be continued a conſiderable Way underneath the *Sternum.* However, the Diſſector, by paſſing his Knife down the *Thorax*, ſoon ſeparated it from ſeveral large Veſſels, and brought it away. The whole Subſtance of it weighed ſomewhat more than one Pound ſix Ounces.

REMARKS.

IN order to form a right Judgment of ſuch ſurpriſing Appearances as theſe, which we ſometimes find in morbid Bodies after Death, we ought to obſerve, that all of them owe their Original to the firſt Conformation of the Parts; ſo that when we diſcover any Part, whoſe Magnitude, Figure, and Solidity, ſo far diſagree with what it was originally, as not to be conformable to it in the leaſt Reſpect, we are obliged to conſider firſt its Situation, and to what Part it is connected, and then to examine what Part is capable of ſuch an Extenſion, *&c.* as that which has undergone ſuch an Alteration. The Gland from whence the Tumour was firſt derived in the preceding Caſe, in our Opinion, was the *Thymus*, and we believe there is a Poſſibility of proving it to be ſo by very good Reaſons. In the firſt Place, the Swelling that was obſerved, was but juſt above the Place where the *Thymus* is naturally ſeated, and a very little Diſtenſion of the Gland might be ſufficient to occaſion it. Secondly, the Veſſels that paſſed through that glandulous Subſtance were the very ſame that conſtantly paſs through the *Thymus*. Thirdly, there is no Gland placed thereabout that is capable of being extended to ſuch a prodigious Degree, except the *Thymus*. And fourthly, if it was not the *Thymus*,

mus, the Woman had no ſuch Gland, for there was no other to be diſcovered. What remains now to be ſolved, provided the other is allowed to be as we have propoſed, is how this Gland came to be diſtended to ſuch a prodigious Degree as was obſerved. Perhaps, if we ſay the Woman's Imagination had ſome Relation to it, it may be looked upon by ſome to be of too little Force to account for ſuch a ſurpriſing Phenomenon, while others, ſhould we take notice of it, might ſay one of the chief Circumſtances was omitted. Upon this Account, as every particular Thing may be of Uſe to us ſometimes in unfolding the Secrets of Nature; ſo we ought not to omit even the leaſt, if we deſign to form a reaſonable Opinion. That there are abundance of ſtrange Accounts in Authors relating to the Force of Imagination, a Man of Diligence and Application cannot be unacquainted with; and I think we do not do Juſtice to our Predeceſſors, without we give Credit to thoſe they relate on their own Knowledge. A very remarkable Hiſtory we find in *Diemerbroeck's* Anatomy, of an old Woman of 66 Years of Age, who out of Commiſeration to her deceaſed Daughter's Child, undertook to nurſe it. Her Breaſts, which for many Years had been withered and flaggy, ſhe offered it with an intenſe Deſire of giving it ſuck: At length they began to give Milk, and that ſo plentifully, that the Child had ſcarce need of any other Suſtenance. The Story, as it is related by the Author, is backed with ſuch conſiderable Circumſtances, as are ſufficient to engage a Man to credit it. Now if it were ſo that the Force of Imagination was ſufficient to cauſe a freſh Quantity of milky Juice to be detached to the Breaſts, after they had been ſo many Years exempt from it, I think we may as reaſonably ſuppoſe, that a greater Quantity of Blood and Spirits, than paſſed any particular Channels before, may be determined to paſs the ſame Channels to any Part which is the Object of ſo ſtrong an Imagination.

OBSERVATION XXII.

A Young Fellow of about 18 Years of Age, had for above 2 Years complained of ſome of the uſual Symptoms of the Stone in the Bladder: At length he was committed to the Care of a Surgeon to be ſearched; but in paſſing the Catheter through the *Urethra*, the Artiſt met with ſome Obſtructions, which gave him Reaſon to ſuppoſe there were Caruncles. This Opinion ſeemed to be fortified by the young Man's Maſter, and ſome other Perſons aſſerting he was venereal, he himſelf not poſitively affirming the contrary: Upon this, ſoon after he was ordered a Salivation, and treated as is uſual in ſuch Caſes. During the firſt Fortnight he continued in it, he ſpit but litle, by reaſon of a conſtant Pain he was afflicted with about the Loins and *Pubis*, that fatigued him Day and Night. About the fifteenth

Day he expired, a little before which he had a total Suppreſſion of Urine. On Diſſection, we diſcovered the Gall-Bladder to be very much diſtended with its Juice, the Stomach being almoſt wholly empty. In the Bladder was found a Stone about as big as a Child's Fiſt, the Surface of which was interſperſed with various coloured Concretions. On the Removal of its external Part, the internal Subſtance appeared to be of ſo looſe and ſoft a Texture, as rendered it eaſily diſſolvable in almoſt any Fluid. Both the Kidneys were diſtended with a thick fœtid Serum, which made them appear prodigiouſly large, and of an unequal Superficies. The ſame Sort of Liquor was likewiſe contained in the Ureters, by which Means they became as large as one of the ſmall Inteſtines.

REMARKS.

WHAT it was that deceived the Operator in paſſing his Catheter, we cannot well conceive, unleſs the Stone, by preſſing on the Neck of the Bladder, occaſioned ſome Corrugations in its internal Coat; and that this has been the Occaſion of forming a wrong Judgment in ſome Caſes, we are pretty well aſſured; though we have obſerved it ſeldom happens, but when the Bladder is in a contracted State: However, the poſitive Affirmation of ſome Perſons that were very well acquainted with him, that he was venereal, might eaſily induce a Perſon to believe they were Caruncles; becauſe they are what are often obſerved in ſuch Caſes. To account for the Stagnation of that purulent Serum in the Ureters and Kidneys, we need only remark, that the Bladder was ſo contracted, that the Stone ſeemed to preſs on its internal Surface, equally alike on all Sides; by this Means the oblique Inſertion of the Ureters into its Coats, muſt be ſo compreſſed as to hinder the Diſcharge of the ſeparated Juice. Now as the Kidneys continued to perform their Office, the Serum not being received by the Bladder, the Ureters in a ſhort Time muſt be neceſſarily diſtended, till the Fluid, by its natural Preſſure, is not capable of farther enlarging their Diameters. When theſe could no longer afford a Space for the entertaining any additional Serum, the Kidneys themſelves muſt be conſequently after the ſame Manner affected. This Etiology, in our Opinion, ſeems to be the moſt probable, by reaſon it ſo agrees with the Mechaniſm of the Parts. Beſide, we are aſſured there was no Obſtruction in the lower Extremities of the Ureters, more than what we have taken notice of; becauſe after the Stone was removed, the Serum diſcharged itſelf very freely, and the Ureters and Kidneys immediately ſubſided. As to the large Quantity of Bile in the Gall-Bladder, it muſt unavoidably happen by reaſon of the Laxneſs and Flaccidity of the Stomach; for when this is diſtended, it always ſo compreſſes the other, as to oblige it to diſcharge its Contents. There are ſome uncommon Inſtances of Perſons that have had Stones perforated in their Bladders, by the Diſtillation of the Serum from the Ureters, by which Means they have been in a great Meaſure exempt from ſome of thoſe Symptoms that uſually attend the Stone in the Bladder; as it happened in a certain Gentleman about 50 Years of Age, till by ſome unuſual Commotion of his Body, the Stone became removed, upon which he was aſſaulted by the moſt ſevere Symptoms imaginable, as a total Suppreſſion of Urine, *&c.* which finiſhed the unhappy Gentleman's Life.

Observation XXIII.

Of a cancerated Breaſt extirpated.

A Woman near 40 Years of Age, by ſome unhappy Accident, received a Blow on her Left Breaſt, which in a few Days was ſucceeded by a ſmall hard Subſtance, reſembling a little indurated Gland, when felt with the Fingers: This continued to increaſe gradually, till its Enlargement was manifeſt to the Eye. The Pain ſhe was afflicted with about this Time was tolerable, though in a ſhort time after it became much worſe. At about 10 Months End, the Tumour was obſerved to be very large, the Skin appearing livid, ſleek, and ſhining; ſoon after this, that Part of it that was the moſt prominent, was attended with an almoſt continual Itching, which terminated in an Ulceration. Now no ſooner had the Air an Opportunity of exerting its Influence on a ſmall Part of the diveſted cancerous Maſs; but the Ulceration daily increaſed, till it became a very terrible Sore, with extraverted Lips, and covered with ſpungy Excreſcencies. In this Condition this poor Woman continued a long Time; at length ſhe applied herſelf to an experienced Surgeon for Cure, who after a ſtrict Examination of her Condition, (being fortified with the Opinions of ſome Phyſicians and Surgeons then preſent) propoſed the Extirpation of her Breaſt; which being agreed with, was thus effected: A convenient Place being choſen, the Patient was ſeated on the End of a Form, a Servant being placed behind her, to confine her in that Poſture, and another on the right Side to ſuſtain the ſound Breaſt, that it might receive no Damage during the Operation. Then the Operator paſſed a Needle, armed with very ſtrong Thread, through the Baſis of the Breaſt; after which he paſſed another to croſs with the former; then tying the four Ends of the Threads together, it formed a Sort of double Loop, wherewith he ſuſpended the Breaſt: This being done with a proper Knife contrived to perform the Operation commodiouſly, he ſeparated the Breaſt from the Body; after which the Operator made his Ligatures on the Mouths of thoſe divided Arteries which required his Aſſiſtance, the Flux of Blood being intirely ſtopped (which was emitted in continued Streams without any Interruptions) from 4 or 5 Arteries. The Wound was dreſſed with a Digeſtive, over which was applied a Compreſs, with a Napkin and Scapulary to ſuſtain the Dreſſings: The three Dreſſings being removed, and all Things appearing under very good Circumſtances, the Wound was dreſſed as before. About the fourth Day after the Uſe of a Digeſtive, it was dreſſed with the Yolk of an Egg and Turpentine. Three or four Days after, the Matter began to diſcharge in a great Quantity, which likewiſe ſmelt very offenſive; whereupon the Wound was dreſſed with with *Tinct. Myr.* and *Mel Roſ.* This in a few Days deterged and attenuated the Matter, and corrected its fœtid Smell. Some time after this, a Part of the cancerous Subſtance that remained after the Operation, began to grow ſpungy, and aſſume a blackiſh Colour, which had a conſiderable Effect on the contiguous Parts that were otherwiſe very well diſpoſed to cicatriſe; upon this Account its Extirpation was attempted by Inciſion, but ſome Part of it ſtill remaining, the Actual Cautery was applied, which likewiſe proved ineffectual. In ſhort, after the Sore was brought into a pretty narrow Compaſs by the alternate Application of *Ung. Aur.* and *Deſic. Rubrum*, common dry Lint or the catheretic Lint being applied over it as Occaſion required; but the ſame miſchievous Accidents attended it as are generally obſerved to be the Concomitants of ulcerated Cancers, as a violent Pain, Running of a ſerous Juice, tinctured with Blood, *&c.* During this ſhe made uſe of the internal Preſcriptions her Phyſician ordered her, but without the leaſt Relief: At length ſhe committed herſelf to an old Woman for Cure, by whoſe Applications the Diſeaſe became very much enraged, and in leſs than 3 Weeks ſhe died.

REMARKS.

AFTER the Extirpation of this Woman's Breaſt, we had the Curioſity to examine its Subſtance; upon the Diviſion of which it appeared to be a prodigious Maſs of a cloſe and compact uniform Texture. From a conſiderable Quantity of this Subſtance, we expreſſed a Juice, which though at firſt very fluid, ſoon coagulated into a perfect Jelly: A Quantity of it being held over the Fire in a Spoon, as it began to grow warm, there flew off a ſmall Vapour, immediately after which it congealed, like the White of an Egg boiled. We put a Quantity of it, while it retained its Fluidity, to ſome Syrup of Violets, in hopes we ſhould diſcover whether it abounded with acid or lixivious Particles; but it wrought no diſtinguiſhable Alteration in the Colour, that tended either to Red or Green. After a due Conſideration of theſe Things, it may be proper to offer a few Conjectures concerning the Cauſe of the Cancer deſcribed in the preceding Hiſtory. In order to ſucceed in this Enquiry, we ought to make ſome Reflection on the *Lympha*; ſeeing we conceive, that when it extravaſates and inſinuates itſelf into the Texture of a Gland, it ſoon coagulates and cauſes ſuch a Diſcompoſure of the glandulous Subſtance, as will eaſily make us believe it has all the requiſite and neceſſary Conditions to qualify it to contribute to the Formation of ſuch a Tumour. Chymiſts, by a chymical Analyſis of this Juice, aſſure us it is a Compoſition of a great deal of fixed Sulphur, a little Volatile, ſome Phlegm, and much Volatile Alkali, to which ſome add a little Earth. It is obſervable, the Lymph remains in a State of Fluidity, while the Volatile Alkali keeps the Sulphur diſſolved; but when by any Means the Volatile Alkali is evaporated, the Remainder coagulates, and forms a pretty compact Subſtance. The Juice that we expreſſed was certainly nothing more than the moſt fluid Parts of the Lymph, that was not ſo well qualified for Coagulation as the other; or it was that which had not been long ſupplied to the Tumour, and ſo had not continued long enough to undergo ſuch a Transformation. To give an Account of the Formation of the Cancer, that ſhall be agreeable to the mechanical Diſpoſition of the Parts, we are obliged to have an Idea of the Structure of that glandulous Subſtance that was diſordered: This was nothing more than a Heap of ſmall glandulous Bodies regularly diſpoſed, and tied together by fine intermediate Membranes, which is what is termed a conglomerate Gland: Over it are extended Abundance of lymphatic Veſſels, ſome Branches of which probably enter into its Subſtance. Now we may reaſonably ſuppoſe, that the Blow the Woman received on her Breaſt, had ſuch a conſiderable Effect on ſome of thoſe Veſſels, as to cauſe a Diviſion of their tender pellucid Coats, and at the Time occaſioned a very great Contuſion of the little glandular Bodies that lay under them. Upon this Account, as the Lymph continued to diſtil from the Orifices of the divided Veſſels, it gradually inſinuated itſelf into the Interſtices of thoſe glandulous Grains; where after a ſhort Time, it coagulated and diſpoſed all thoſe little Bodies, with their excretory Veſſels, firmly to coaleſce with it, and form a Subſtance of a uniform Nature, which was capable of Increaſe by a continual Supply of a proper Matter from the broken Lymphatics. This Subſtance muſt be neceſſarily very cloſe and compact, not only from the Nature of the Juice, but the Structure of the Part; for the Compreſſure of the elaſtic Integuments upon it, before the Ulceration, contributed very much to it. As to the violent Pain that attended the cancerated Breaſt, it muſt be a neceſſary Conſequence of the Increaſe of ſo hard a Subſtance as the Cancer is; for it not only engages all thoſe ſmall Branches of the Nerves that were diſtributed among the little glandular Bodies, to promote the Secretion of a milky Juice, at ſuch a Time as Nature ſhall determine, but likewiſe compreſſes the larger Branches from which thoſe were detached, that entered into its Subſtance. That there are ſuch Nerves that ſerve for ſuch a Uſe, we have the Authority of that accurate Anatomiſt, *A. Nuck*, who, ſpeaking of the Neceſſity for Spirits in the Filtration of the Milk, expreſſes himſelf thus: *Ductus autem hi lactiferi, ſoli non ſufficiunt ad lac ſecernendum, ſed ſimul neceſſarium fuit, per nervos numeroſiſſimos, ex nervis thoracicis oriundos, copiam ſpirituum affluere, lactis ſecretionem promoventium.** It is a Matter of very great Importance, in order to regulate the Extirpation of Cancers, to conſider that a ſmall Part of it that remains after the Operation, is capable of producing ſo many ill Effects; and this it is certainly diſpoſed to, becauſe it is a Subſtance ſo very unfriendly to Nature, that the common Medicines can never operate on it, though applied to it, ſo as to cauſe any advantageous Alteration in it: Beſide this, it is altogether unqualified for entertaining a Correſpondence with the Fibres of the Part, that by a ſweet Suppuration gradually extending themſelves, cloſely ſurround it, ſo that this remaining Part of the cancerous Maſs a few Days after the Operation, appears to be a hard Subſtance of a whitiſh Colour, circumſcribed by a bright red Circle, formed by the Preſſure of the Fibres and capillary Extremities of the Veſſels againſt it. After ſome Time, notwithſtanding the Wound has continued to cicatriſe from its Edges, looks as well as poſſible, and is brought into a pretty narrow Compaſs, the little cancerous Lump begins to aſſume a blackiſh Colour, about which

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* Theſe lactiferous Ducts are not ſufficient alone to ſecrete the Milk; but it was neceſſary at the ſame Time, that a large Quantity of Spirits ſhould flow through a great Number of Nerves, ariſing from thoſe of the *Thorax*, in order to promote this Secretion.

Time it generally emits a Juice of a very offenſive Smell: This is probably occaſioned by nothing more than its being often expoſed to the Air, which if it contains any conſiderable Quantity of ſaline Particles,' does not fail to cauſe ſuch a Diſſolution and Corruption of that Part of it, that was capable of receiving ſuch an Impreſſion; ſo that we cannot allow any inherent acid Quality of its own to be the Cauſe of ſuch an Alteration.

OBSERVATION XXIII.

Of a luxated Shoulder reduced by a newly improved Machine.

A Woman about 54 Years of Age, by a Fall luxated the *Os Humeri* of the Left Arm forward. The Pain not being very violent, and ſhe finding ſhe could move her Arm tolerably well, by the Aſſiſtance of her other Hand, imagined it was nothing more than a Bruiſe, and ſo omitted the applying herſelf immediately to any proper Perſon for Relief: However, the Stiffneſs of the Parts increaſing, at length ſhe thought herſelf obliged to comply with the Uſe of Means. To add to this poor Woman's Misfortune, ſome Years before ſhe had unhappily ſcalded the upper Part of her Arm and a Part of her Breaſt, by boiling Water, whereby the Integuments to this Time continued to be very much contracted and hardened in that Place, which formed an ugly and very unequal Scar. Upon this Account, it was thought proper to make uſe of an emollient Application, before the Reduction ſhould be attempted, to relax the indurated Membranes, and remove the Tenſity of the Fibres of the Muſcles: This being two or three Times repeated, there were ſome Eſſays made to reduce it the next Day; the firſt was by that Way invented and recommended by *Joannes de Vigo*, which is by putting the Heel in the Armpit; the next was by the Girt; but theſe proved ineffectual: Whereupon the Day after, a ſmall Machine was made uſe of, which conſiſted of a conſiderable Number of ſmall Braſs Wheels, properly diſpoſed, by which Means the Extenſion is made as eaſy and regular as poſſible, and which may be looked upon as an Improvement of the Pulley deſigned for ſuch Ends deſcribed by *Parry* and other Authors. It is true, the *Apparatus* in this Caſe, makes the Patients apprehenſive of a great deal of Pain they are to undergo; but it is moſt certain, it does not contuſe and diſtort the Muſcles after ſuch a Manner as ſeveral other Methods do. To effect it commodiouſly, there muſt be a Bar fixed horizontally, of a convenient Height, round which, about the Middle, there is a Napkin to be wound, after it has been folded lengthways. On this Part of the Bar, which is thus armed, is the Armpit to be placed; then you encompaſs the Arm juſt above the Elbow, with another Napkin; over which a Cord is to be faſtened, that is to be ſo diſpoſed, that it may have four Ends at pretty equal Diſtances from each other, which are to reach about a Yard from the Ends of the Fingers: Theſe Ends, after they have been exactly extended, ſo that they may draw equally with the ſame Force, are to be faſtened to a Sort of a Loop, at the End of the firſt Pulley; the other is to be fixed to a Hook drove firmly into a Poſt near the Ground; which Method is infinitely more commodious and uſeful than the antient Method of extending by one Cord only, which muſt draw the Muſcles after a very irregular and unequal Manner. After theſe Things are thus ordered, the Surgeon places himſelf commodiouſly to aſſiſt the Replacing of the Bone; an Aſſiſtant ſtands behind to hold the Patient, while another makes a conſiderable Compreſſure on the *Acromion*; a third takes care the Arm be kept extended in the Middle of the four Cords, and the fourth draws the Line according as the Surgeon directs, to make the Extenſion, which it does with very little Force, and extremely gradual. After this has been ſufficiently made, if the Bone does not ſlip into its Place (as it did in the preceding Caſe) the Extenſion is to be no longer continued, but the Surgeon ſuddenly brings the Arm to the Side, and at the ſame Time puſhes the *Os Humeri* upward, and ſo reduces it.

REMARKS.

THE various Methods the Antients diſcovered of reducing a luxated Shoulder, perhaps firſt of all proceeded from the Difficulty they found in effecting it; however, it is evident, they were not ignorant of the Force that muſt be applied to overpower that of the Muſcles, by the Machines and other Contrivances they invented to make a vigorous Extenſion. Now if we do but conſider that the Force of all the Muſcles depends purely on the Multiplicity of their Fibres; or, according to Dr. *Pitcairne*, if their comparative Force be as their Solidities or Gravities, we may very eaſily imagine, that in all the Actions of the Arm, ſome of the Muſcles that contribute to its Motions are ſo diſpoſed, that they muſt continually act with a great deal of Force in keeping the Head of the *Os Humeri* cloſe to its *Sinus* in the *Scapula*, which is its Center of Reſt: Upon this Account it is, that if the Head of the Bone be removed from its Cavity, it gives an Opportunity to ſome of the Muſcles to ſhorten themſelves to a much greater Degree than uſual; becauſe that which oppoſed their contracting Force, is removed out of its Place, and the Head of the Bone reſts itſelf nearer the Original of the Muſcles. The very Articulation of theſe Bones, the wiſe Contrivances, and prudent adapting the Muſcles for the Performance of the ſeveral Motions of the Arm, is really very ſurpriſing: To this we may add, that Nature has been ſo very provident to prevent the Diſlocation of the Head of this Bone, as to form a perfect tendinous Caſe, which is placed on the Margin of the *Sinus* of the *Scapula*, that chiefly contributes to the confining the Head of the Bone to its Cavity, which would be otherwiſe liable to be diſplaced on ſeveral Motions of the Arm. *Borelli* hath ſhewn, that theſe Bones are ſo many *Vectes*, of which the Center of the Articulation is the *Fulcrum*, the Tendons are the Ropes, by which the *Vires Motivæ* of the Muſcles elevate or move any Weight: And indeed there is a wonderful and exactly nice Geometry, uſed by the Author of Nature in the Articulation, Diſpoſition, and Motions of theſe Bones, which are likewiſe contrived of the beſt Make that could be poſſible: Their being hollowed in the Middle is for very wiſe Ends and Purpoſes; for by this Means they are not only more light, and ſo leſs Force in the Muſcles required to move them on all Occaſions, but really ſtronger, than if they had compoſed one ſolid Cylinder. To prove this, *Galileo* has demonſtrated, that of two Bones of equal Lengths, and of equal Number of Fibres, the Strength of the one is to the Strength of the other as their Diameters are; ſo that a hollow Bone, of a double Diameter, is as ſtrong again as a cloſe one of the ſame Number of Fibres. As to the Method we have made mention of, we have ſeen it ſucceſsfully practiſed in a robuſt Body, when the *Ambi*, the Girt, the Heel, and the Door have failed, though there are ſeveral Surgeons preſent that had all the Aſſiſtance they required.

OBSERVATION XXV.

A Little Boy about 3 Years and a half old, after having been allowed too great Freedom in recreating himſelf with his Playfellows, was ſeized with a violent Fever, the next Day. By the Uſe of ſome proper Preſcriptions, the Diſeaſe ſomewhat abated, and the Child continued in a pretty good Condition for three Days; the fourth Day from the Commencement of the Diſorder, a Clyſter was given, which worked very well; but the Mother of the Child being impatient, and thinking the perfect Recovery of it altogether depended on the purging of him, the next Day gave it a purgative Medicine; but this not working, ſhe repeated it the next Day after, but, as the former, it was not ſucceeded by ſo much as one Stool. About this Time the Child became much worſe, the

Fever was very much increaſed, it had a violent Aſthma, a Pain of its right Side, and the next Day it died. On Diſſection, the right Lobe of the Lungs appeared to be very much inflamed and enlarged, by reaſon of the vaſt Quantity of Blood it contained; its external Membrane was covered with thick whitiſh Matter, the internal Subſtance of which ſeemed to conſiſt of an infinite Number of ſmall Cells that were formed of the moſt viſcid Part of it, and contained a limpid Juice. The left Lobe had ſome of this Subſtance adhering to it, but it did not ſeem to have undergone ſuch an Inflammation as the former. The right Auricle, that was prodigiouſly dilated, and the right Ventricle, were filled with coagulated Blood, the Weight of which, that in the Auricle more eſpecially, and the Enlargement of the right Lobe of the Lungs, had forced the Heart into a very odd Poſition. The left Ventricle of the Heart had a *Polypus*, and ſome coagulated Blood in it. Upon the Diviſion of the *Aorta*, juſt before it divides itſelf into the aſcending and deſcending Trunks, a Part of the *Polypus* was diſcovered, which being taken hold of, and ſome Part of it drawn out, it was obſerved to divide itſelf into two Branches; one paſſed up the right carotid Artery, and the other down the deſcending Trunk of the great Artery: The firſt of theſe was divided into five Branches, the longeſt of which, after it was taken out of the Veſſel, was eleven Inches without being extended; that which paſſed down the *Aorta* was eight and a half. The Subſtance of the *Polypus* very much reſembled a viſcid Juice coagulated, though it ſeemed to be of a more compact Subſtance than we had ever obſerved any to be before. It is obſervable, that to ſome Parts of it there were ſome Particles of coagulated Blood united, but theſe were chiefly to be found on that Part that was lodged in the Ventricle, or near it; the Extremities of the Branches being altogether exempt from them.

REMARKS.

OUR Reflections on what appeared on the diſſecting of this Body, were chiefly owing to ſome Inſtances we met with of Children that were indiſpoſed much after the ſame Manner as that we have made mention of, in whom, after Death, there was not only an Inflammation of the Lungs diſcovered, but a *Polypus* in one or both Ventricles of the Heart: And indeed, if we do but conſider the State of the Blood in ſuch a Caſe, and how it may be diſpoſed to ſtagnate in the Lungs, either by its too great Viſcidity, or by a particular Conſtitution of the Air, it does not ſeem ſo very difficult to give a Reaſon for ſuch Appearances. Now, if we do but obſerve, that as the Blood continues to be thrown out of the right Ventricle of the Heart, into the *Arteria Pulmonalis*, to be conveyed to the Lungs; if it does not find a ready Paſſage through them, it muſt neceſſarily ſtagnate, and by its Weight, ſo compreſs the little Air Bladders, as to prevent their regular Expanſion, from whence there will be a Difficulty of breathing, or, in other Words, the Perſon will become aſthmatic: By this Means likewiſe the left Auricle and Ventricle of the Heart will be deprived of the Influx of their due Proportion of Blood; upon which Account, the Quantity being ſo ſmall, it cannot act by its lateral Preſſure ſo as to diſtend the left Auricle and Ventricle to their uſual Degree; for which Reaſon, the nervous Juice will be ſqueezed into them but in a ſmall Quantity, and conſequently their elaſtic Force (which is of Uſe to propel the Blood forward) will be but very inconſiderable. There is nothing more certain, than that the Blood and the Auricles, Ventricles, and Arteries, continue to act on each other; and that the conſtrictive Power of the latter is always proportionable to the expanſive Motion of the former. Now if the Quantity of Fluid they contain is but ſmall, their Vibrations, as they bear a Proportion to its lateral Preſſure, can have but very little Effect on it; ſo that it will be diſpoſed to ſtagnate, upon which a Separation of its Parts will enſue, by reaſon of the Difference of their Bulk and Figure: This Separation being made, the branched Particles firmly engage with one another, from which intimate Coheſion they obtain a greater Degree of Solidity. Beſide this, ſome Parts of it are entangled about the little tendinous Fibres that draw together the Sides of the Ventricle, ſo as to prevent its being eaſily diſengaged. Now thoſe Parts of the Blood that are the beſt qualified for uniting with one another, and forming ſuch a Subſtance, we take to be ſuch as compoſe the viſcid Serum, which at this Time muſt neceſſarily become ſo, for a very conſiderable Reaſon, which we ſhall take notice of. Dr. *Wainright*, in his Treatiſe of Non-Naturals, intimates, that the Heat of the Body in Fevers acts an univerſal *Stimulus*, whereby all the Glands will be ſtraitened, and conſequently the ſecerned Matter will be thinner or more fluid, and the remaining Part of the Blood more ſolid than in a natural State. Now the groſs Parts of the Blood being retained in this Condition, it is therefore more viſcid. Beſide, its Viſcidity is increaſed by Heat, as is known by Experiment: For if you apply a much leſs Degree of Heat than will boil Water, it will turn the Serum into Jelly: The Heat of the Blood in Fevers is greater than moſt imagine; the Heat of a Man's Skin, whoſe Pulſe beats 60 Strokes in a Minute, is to the Heat of boiling Water, as 16 to 52, as appears by the Thermometer; ſo that boiling Water is but little more than three Times as hot as the Blood of a healthy Man: Now if the Heat of the Blood ſhould increaſe, in proportion to the Frequency of the Pulſe (as it muſt if the Pulſe beat with the Strength it did, and generally it is ſtronger) a Man then, whoſe Pulſe beats 195 Strokes in a Minute, would be as hot as boiling Water; and it is common for a feveriſh Pulſe to beat 120 Strokes in a Minute; hence (ſays our Author) we may account for the Sizineſs of the Blood in Pleuriſies, and other inflammatory Diſtempers.

OBSERVATION XXVI.

Of a prodigious Piece of the Skull extracted, after which the Patient recovered.

A Woman about 50 Years of Age, received a Blow on the Head with a Stone, which laid a ſmall Part of the ſagittal Suture bare. This ſmall Wound was at firſt dreſſed by an unſkilful Perſon, who by applying unctious Medicines, fouled the *Cranium* a conſiderable Way, and produced a very large Diſcharge of Matter; by this Means the muſcular Membranes were in a ſhort Time corrupted, which emitted a very offenſive Smell: My Maſter, Mr. *Bateman*, to whoſe Care ſhe was committed, ſeparated the Teguments by Inciſion, as far as the Bone had received any Alteration, which was dreſſed with *Tinct. Euphorb.* and oftentimes cauteriſed. After the Uſe of theſe Means about four Months, ſeveral ſmall

Particles of both Tables came away with the Dreſſings, ſo that the Pulſation of the *Dura Mater* might be eaſily diſcerned. Notwithſtanding this, it was ſeveral Months before the Bone became ſo looſe as to be extracted without putting the Patient to violent Pain. The Piece conſiſted of both Tables of the Skull: The greateſt Part of it was of the left Parietal Bone, the reſt being a ſmall Part of the right parietal and occipital Bones. It is very obſervable, that over the *Dura Mater* Nature had framed a hard carnous Tegument, to defend the Brain from external Injuries. This carnous Cover was not ſo compact but the alternate Elevation and Depreſſion of the Brain may be obſerved at this Time, which is above a Year and a half ſince it was cicatriſed. After the Cure was completed, the Patient conſtantly wore a ſoft Compreſs of Lint, Tow, or Cloth, with a large Cap of Tin quilted over it, to reſiſt any Compreſſure on the Part.

REMARKS.

THIS Obſervation may ſerve to confirm the Opinion of thoſe Authors that have aſſured us of the Inconvenience that may attend the Application of oleous or unctious Medicines to bared Bones; though at the ſame Time, we conceive that it is not ſo much any particular Quality in theſe Medicines that diſpoſes them to have ſuch an Effect, on Parts of ſuch a Nature as the Bones are; but it ſeems to be chiefly occaſioned by the large Quantity of Matter that thoſe Applications produce, ſeeing all of them very much promote Suppuration. Now after a Bone becomes denuded, if ſuch Medicines are applied, as are capable of relaxing the Fibres of the Part, they do not fail to diſcharge their Contents in very large Quantities, and continue ſo to do, till by the Application of ſome ſpirituous or moderately aſtringent Medicine, their too lax Tone be rectified. It is ſome Particles of the Matter that continually lay on the naked Bone, that firſt inſinuate themſelves into its Pores, and ſo ſoften the Fibres it has the Opportunity of having its Effect on; after this the bony Fibres begin to recede a little from each other, to which the Pores on the Surface of the Bone are proportionably enlarged: At this Time it is that the Bone ſeems to be ſomewhat thicker in this

Place than uſual, becauſe all the Vacuities of the Bone are filled with ſuch a Matter as has diſpoſed the Fibres to extend themſelves; but this muſt be neceſſarily much ſooner effected in ſuch a Caſe as that above related, where, by Means of the Suture, the Matter had an Opportunity of inſinuating itſelf betwixt the Bones, as ſoon as ever it began to be lodged on the Part. As to the Uſe of Actual Cauteries on ſuch a Part, *Fallopius* gives us a very neceſſary Precaution. * *Fugite uſtionem in capite* (ſays he) *quando imminet periculum inflammationis. In oſſibus thoracis ſimiliter; ne febris & mors ſuccedat. Præterea in vertebris dorſi fugite ferramenti, ne incandeſcat medulla & pereat æger.* See his Treatiſe *de Morb. Gallic. cap.* 97.

Ambroſe Parrey, in his *Chirurg. lib.* 10. *pag.* 249. *Edit. Anglican.* informs us, he had a Perſon came to him, who had the *Os Bregmatis* of the left Side broken with a Sword, which did not reach the ſecond Table: A few Days after his Recovery, the Bone being agglutinated, by eating plentifully of Tripe fried with Onions and Spices, and drinking a great Quantity of ſtrong Wine, he preſently fell into a continual Fever, and loſt his Speech and Underſtanding; his Head ſwelled, his Eyes looked red and fiery, and as though they would have ſtarted out of his Head. Theſe Things being conſidered, our Author let him Blood, having firſt, by the Advice of his Phyſicians, given him a Clyſter, and applied to his Head ſuch Things as were fit; he alſo laboured with Frictions and Ligatures of the extreme Parts, to draw the Humours downwards; yet for all this, the Part of the Head which was formerly affected, began to apoſtumate, which being opened, there came forth a great Quantity of Matter, and at length the Integuments ſinking down, both the Tables of the Skull became putrefied and rotten, as might be eaſily known by their Blackneſs and Stench. Now to take away this Corruption, there were applied actual Cauteries at certain Times, both to amend the Corruption, and ſeparate that which was altered. After ſome Months Space, a great Number of Worms came forth by the Holes of the carious Bones, from underneath the putrified Scull; which moved our Author to haſten the Separation and falling away of the putrid Bones; which being done upon the very *Dura Mater*, in that Place which Nature had covered with Fleſh, he obſerved three Cavities of the Largeneſs of One's Thumb, filled with Worms about the Bigneſs of a Point's Tag, with black Heads diverſly wrapped among themſelves. The Bone which Nature ſeparated was of the Bigneſs of the Palm of One's Hand, ſo that it was ſtrange (ſays he) that ſo large a Portion of the Skull ſhould be caſt off by Nature, and the

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* Forbear to cauteriſe the Head when there ſeems Danger of an Inflammation. Obſerve the ſame in the Bones of the *Thorax*, leſt a mortal Fever ſhould ſucceed. Avoid likewiſe the Uſe of the Iron on the *Vertebræ* of the Back, leſt it ſhould melt the Marrow, and deſtroy the Patient.

Patient not die thereof, for he recovered beyond all Men's Expectation; but after the Agglutination of the Wound, the Scar remained very hollow; in ſhort, the Patient wore a Cap made of thick Leather, more eaſily to withſtand external Injuries, whereby he grew much better.

Vauguion, in his Chirurgical Operations, p. 179. gives us the Hiſtory of a Woman that was in the *Hotel Dieu* at *Paris*, who receiving a Blow on the Head, the Teguments were all corrupted, and a Moiety of the Skull was laid bare. Both Tables exfoliated, ſo that Part of the Frontal Bone, and a Moiety of the two Parietal Bones came away all at a Time; and this bony Caſe being removed, the Brain lay bare, and its Motion was very diſcernible: By Degrees it was covered again by a carnous Matter, which conſolidated; but this Cover never arrived to ſuch a Degree of Hardneſs, as to reſiſt the Impreſſion made by the Motion of the Brain. Upon the leaſt Touch imaginable with the Finger on this carnous Membrane, the Woman inſtantly ſeemed to ſee a thouſand Candles. She had a Cap of Lead made to cover the Part, and defend it from external Injuries, and carried about the exfoliated Bone, as a Cup to receive Alms in.

Observation XXVII.

Of a Leg amputated, in which the Arteries were perfectly petrified.

AN old Man of about 67 Years of Age, that for a conſiderable Time had laboured under a ſcorbutic Habit of Body, was frequently attended with ſuch a Chilneſs of his Feet and Legs, that (to uſe his own Expreſſion) it was hardly poſſible to keep Life in them: After ſome Time, he obſerved a black Spot upon one of his Great-Toes, which not being painful, nor in the leaſt Reſpect troubling him, he at firſt took but little Notice of, though he was very ſenſible of its Increaſe. It was a conſiderable Time before he applied himſelf to any Perſon for Cure, nor had he then, had not the Mortification, by its gradual Progreſs, extended itſelf over the next Toe to that which was firſt diſordered. There were ſome proper Applications made uſe of, that contributed to the Separation of the mortified Fleſh, but were not effectual in putting a Stop to its Increaſe; for the whole Foot became very much tumefied, and ſeemed to threaten an approaching Gangrene: The Surgeon that had the Care of the old Man, did not give him ſo favourable a Prognoſtick as he expected when he asked his Opinion of his Caſe, whereupon he was reſolved to have his Leg amputated. There were ſome Perſons preſent that endeavoured to diſſuade him from ſo raſh a Propoſal, telling him the Danger of ſuch an Undertaking in a Perſon of his Years and ſo diſordered, and the ill Succeſs the Operation might be probably attended with. Notwithſtanding this, he perſiſted in it, alledging, there was no other Way to be propoſed to ſave his Life. The Leg was taken off after the uſual Manner; but there was one Thing very remarkable during the Operation, which was that when the Ligature was looſened, in order to diſcover the Veſſels, that they might be taken hold of by the Forceps and tied, the Blood diſcharged itſelf in ſo ſmall a Quantity, that the Mouths of the Arteries could not be diſcovered without a great deal of Trouble. A Stop being put to that little Effuſion of Blood, the Stump was dreſſed up, and all Things elſe were ordered as is cuſtomary; but the Part was never brought to a good Digeſtion: In ſhort, in a few Days it began to to mortify, the Patient. was ſeized with a violent Fever, began to be attended with Rigours, and preſently after died. The Diſſection of the Leg obliged us with the Diſcovery of the Arteries being perfectly oſſified, the Diameters of the Bones of which were ſo wonderfully leſſened, that they would not admit a ſmall Probe without a great deal of Difficulty.

REMARKS.

THIS was the firſt Inſtance of this Nature that ever we took notice of; though ſome time after, by examining the Legs of old Perſons, after they had been amputated, we ſaw one that afforded us juſt ſuch a Caſe, and in ſeveral we have obſerved the Arteries have aſſumed a cartilaginous Hardneſs: It is no Wonder that Perſons in ſuch a Condition are attended with Mortifications, and that theſe revive after the Part has been taken off. It has been a common Obſervation, that Mortifications from an internal Cauſe, are to be eſteemed incurable, more eſpecially, if they happen in aged Perſons; and it is very probable, thoſe that ſeize ſuch Subjects, are often occaſioned by ſuch a Petrification of the Arteries. We once ſaw a very old Man, who had been fatigued with a tedious Indiſpoſition of Body, that a few Weeks before he died, was brought to ſuch a languiſhing Condition, that his Fingers began to grow black and mortify: Notwithſtanding this, he was not ſenſible of any Manner of Pain in them, though in a ſhort Time they were perfectly withered up, and dried like a Stick. It is obſervable, that the Mortification never extended itſelf farther than the Fingers, nor did it ever emit any offenſive Smell. This Mortification muſt be either from the preceding Cauſe, or elſe the Blood was reduced to ſuch a depauperated State, by the Expence of its active and ſpirituous Particles, that it no longer contained any Characters of Life, but remained in its Veſſels as a dead unactive Maſs, incapable of influencing the Part either by Heat or Motion: Now the Blood being in this Condition, the Parts will be neceſſarily diſpoſed to mortify, ſeeing their Health and Life altogether depends on a certain Modification of the Particles of the Blood which gives it its Warmth and Fluidity: It is upon this Account, that tedious Fluxes, great Abſtinences, and all Sorts of great Evacuations, are generally ſucceeded by Mortifications; for the Spirits by theſe Means become diſſipated, the proper Modification of the Blood deſtroyed, and the natural Heat conſequently extinguiſhed.

Mr. *Cowper*, in the Philoſophical Tranſactions, Numb. 280, relates the Hiſtory of an old Gentleman in the 67th Year of his Age, that for near twenty Years before, loſt the Uſe of his Legs; and in that Time he had been ſo perſecuted with Convulſions in them, that neither Leg was free a Quarter of an Hour together, whether ſleeping or waking. At length, one of his Toes mortified, which was taken off by an expert Surgeon of *Saliſbury*. Not long after, more Toes of the ſame Foot followed the like Fate: The Convulſions following that Leg ſtronger and quicker, that Part of the Foot next the Toes became tumid and inflamed, the Tumour extending itſelf above the *Maleoli*; a ſinuous Ulcer paſſed by the Side of one of the metatarſal Bones, the Extremity of which Bone (whence the Toe was taken off) lying bare. Our Author finding the Leg very chilly, the Neceſſity of parting with it was too evident; which the Gentleman ſuffered with extraordinary Fortitude: On the Abſciſion (which was about five or ſix Inches below the Knee) it was unexpected to ſee ſo little Blood ſpouting from the Arteries. The Stump being bound up, and committed to the Hands of two or three Servants, a leſs Number not being ſufficient to hold it, by reaſon ſuch ſtrong convulſive Motions purſued the Part on the Operation. When our Author had diſcovered the Ends of the Arteries in the Leg abovementioned, he endeavoured to paſs his Probe into one of them; but meeting with ſome Oppoſition, he ſuſpected he had miſtaken the Vein for the Artery, and that the Valves oppoſed the paſſing of the Probe that Way; but on farther Diſſection, he cleared the Trunks of both thoſe Blood-Veſſels, and found the Veins in their natural State; but the Sides of the Arteries were grown bony or ſtony.

Observation XXVIII.

A Young Fellow about 20 Years of Age, by I know not what Accident, had his left Leg fractured aboard one of her Majeſty's Ships. The Surgeon immediately attempted its Reduction, and bound up the Part: The next Day he was ſent aſhore, where on an Examination of the Member, it appeared to be of a very ill Figure; the Extremities of the Bones were as much diſplaced as ever, and the whole Leg was exceedingly tumefied and inflamed: Means being made uſe of to remove the Swelling and Inflammation, the Reduction was a ſecond Time attempted, which to all Appearance was very well effected; for the Part continued pretty free from Pain, and in its true Poſition near a Month, about which Time he being permitted to walk with Crutches, by ſome unhappy Accident got a Fall, and diſtorted the fractured Bones: In this Condition he continued about three Weeks, and at length he was ſent up to Town, where the Surgeon that had the Care of him, on a ſtrict Examination, finding the *Callus* very near confirmed, deſiſted from attempting its Reduction, but bound up the Part, and laid it in as good a Poſture as poſſible, in hopes he might walk with it tolerably well, though he muſt always have been contented with the unpleaſing Proſpect of a crooked Leg. However, ſoon after this, he got a ſecond Fall, whereupon the Part was examined, during which it was obſerved, that on a conſiderable Compreſſure on the protuberant Part, the Ends of the fractured Bone and *Callus* ſeemed to give way. This gave ſome Encouragement to attempt its Reduction, which was thus performed. Two Aſſiſtants commodiouſly placing their Hands above and below the Fracture, made a vigorous Extention; in the mean while, the Perſon who deſigned to reduce it, compreſſed the moſt prominent Part with the Palm of his Hand ſo violently, as obliged the fractured Bones to recede ſufficiently, to recover the natural Figure of the Part. After this, by applying his Hands on each Side the Fracture, and preſſing it equally all round, he was ſenſible the Extremities of the Bones were reinſtated in their proper Places: This being done, the Part was encompaſſed with a proper Plaiſter, over which, on that Part which had been the moſt protuberant, was fixed a Compreſs of Plaiſter, conſiſting of ſeveral Folds; then was applied a Bolſter and gradulated Compreſſes, to fill up the Inequalities of the Part; all which were retained in their proper Places, by means of a Rowler about three Fingers broad, and of a ſufficient Length. During the Application of theſe Things, the Part was kept in a true Poſture, and a moderate Extention continued. Then the Remainder Part of the Dreſſings being applied, as is uſual in ſuch Caſes, the Part was laid in ſuch a Poſition as was capable of preſerving its natural Figure. About 16 Days after, the Dreſſings were removed, and all Things appeared in a very good Condition: In ſhort, in a Month's Time, he was permitted to walk with Crutches, but with better Succeſs than before; in five Weeks Time, the Dreſſings were all removed, and the Perſon had the Satisfaction of a very ſerviceable Leg.

REMARKS.

THIS Attempt in the preceding Caſe, was altogether owing to a ſucceſsful Undertaking of the ſame Nature, that was practiſed on the Arm of a Gentlewoman, which had continued ill ſet above three Weeks; and indeed we ſee no Reaſon but that it may be effected in any Perſon, if no ill Accidents attend, provided it be attempted before the *Callus* be confirmed, or arrived to ſo hard a Conſiſtence as the Bone itſelf. This *Callus* ſeems to be nothing more than an Aſſemblage of the nutritious Particles of the Blood, that receive a particular Modification, by paſſing through ſome peculiar Channels in the Bone. The Particles are at firſt ſomewhat viſcous and branched, which qualifies them for engaging with one another, at which Time they lay hold of the little bony Fibres that form a Sort of Net-Work in the Middle of the Bone, and probably ſupport the Marrow that would otherwiſe ſink to the lower Extremity: This being ſo, its extending itſelf round the Bone ſo far, is in a great meaſure prevented; though it does ſometimes happen, when the Bandage is ſo ſlack as not to have any Effect on it by its Compreſſure. There is but little more Difficulty in bringing a Bone to its proper Figure, before the *Callus* be arrived at a ſufficient Degree of Hardneſs, than there is in reducing thoſe curved Bones, which are generally the Effect of a Fall in young Children, where the Fibres of the Bone are not divided, but exceedingly extended on the convex Side, the concave Side being mightily contracted, or its Parts forcibly preſſed together. The ſame Alteration we obſerved in bending a green Stick; only on that Side where its Fibres are compreſſed, they always run into Folds, and ſo form little Convexities. *Fallopius* and *Etmuller* are of Opinion, that if the Bone be attempted to be broke after the *Callus* be ſufficiently hardened, it will ſooner break in any other Place than in the *Callus*; and indeed the Opinion ſeems to be reaſonable enough; for the Diameter of the Bone in this Place will be greater than it was before, upon which Account a greater Force will be required to break it in this Place than any other, for the Strength of the Bones chiefly depends on their Thickneſs.

In the Leg of a Man that was amputated three Weeks after it was fractured, we ſaw the *Fibula* united by a *Callus*, which was ſo ſoft and pliable, that it would eaſily yield any Way upon bending the Bone. This *Callus* wholly proceeded from the internal Subſtance of the Bone, nor did it at all unite to the bony Fibres that compoſed its Sides, though it was lodged betwixt them. Its Subſtance, which was of a whitiſh Colour, exactly reſembled a Piece of Horn made ſoft by boiling. *Fernelius* and *Hollierius* have obſerved, that in ſome Perſons by Sickneſs, the Bones have become ſo ſoft and flexible, that they might be eaſily bent any Way.

OBSERVATION XXIX.

Of a large flatuous Tumour above one of the Knees.

A Young Man about 22 Years of Age, that had been for a conſiderable Time confined to his Bed by Means of a ſore Leg, and ſome other Diſorders he then laboured under, one Day requeſted the Surgeon that had then the Care of him, to look on a large Swelling that was a little above one of his Knees, which he ſaid he began to be firſt ſenſible of about three Weeks before; the Tumour was ſoft, painleſs, not at all diſcoloured, eaſily gave way to the Preſſure of the Finger, but immediately re-aſſumed its former State; all which were diſtinguiſhing Characters of its being flatulent: Upon this Account it was embrocated very well with *Spir. Vin. Cam.* and an *Emp. è Cym.*

was applied. After three or four Days the Plaiſter was removed, and the Tumour ſeemed to be ſomewhat leſs. The ſame Means were again repeated; but they cauſing no diſtinguiſhable Alteration in it, a Puncture was made with a Lancet, of a conſiderable Depth; upon which the Tumour immediately ſubſided a little, by the paſſing out of an impriſoned Air. This was ſucceeded by the Diſcharge of two or three Ounces of a viſcid Juice of a whitiſh Colour: A Quantity of this being held over the Fire in a Spoon, ſome of the moſt volatile Parts of it immediately evaporated, and the Remainder hardened like the White of an Egg boiled. There ſeemed to be a conſiderable Quantity of Matter remaining behind, that was too viſcous to be diſcharged by this ſmall Aperture, whereupon a Cauſtic was applied about the Breadth of a Shilling: Upon the Diviſion of the Eſchar, there came away about two Ounces of Matter, which had received a conſiderable Alteration in its Colour by the Mixture of ſome of the Salts of the Cauſtic. In ſhort, as the Eſchar digeſted off, the remaining Part of the Matter diſcharged, and the Ulcer was incarned and cicatriſed in about three Weeks Time.

REMARKS.

WE do not find that the Antients, or Moderns, have declared their Sentiments concerning the Cauſe of flatuous Tumours, with ſo great a Probability as in moſt other Caſes: And there is a late Author that ſeemed to be ſenſible of the Difficulty that muſt attend the attempting it, that has almoſt altogether declined it. Whatever the Reaſon of it is, it is certain, the Antients had not a true Knowledge of that which is neceſſary to its Production: And we are apt to believe, that without the Diſcovery of the lymphatic Juice, we had never been able to account for it. This Juice, when it is extravaſated, grown ſomewhat viſcid, and lodged at the Bottom of theſe Sort of Tumours, as it always does, is certainly what Authors generally diſtinguiſhed by the Name of a thick pituitous Humour. It is very probable, this Juice does not begin to aſſume a Viſcidity, till it is deſerted by thoſe active Parts that maintained its Fluidity. Theſe ſubtle Particles endeavouring to make their Eſcape, preſs upon thoſe Parts that contain them, equally on all Sides, till thoſe are obliged to give Way, that have the leaſt Power to oppoſe the expanſive Force: This, if the ſubtle Matter is collected underneath the Integuments, is always outwardly, the Tumour bearing a Proportion to the Quantity of Matter it contains, and the Compreſſion and Rarefaction it undergoes. That the external Air will have an Effect on it this Way is moſt certain, and perhaps, the having a Reſpect to this, in thoſe Tumours that are obſtinate, may contribute very much to the removing them; for the Matter being thinned, it more eaſily perſpires; beſides, the Coheſion of the viſcid Parts, that remain behind, may be the better diſunited, when it is diſpoſed to be rarefied. On the contrary, we always find a greater Difficulty in removing theſe Sort of Tumours in the Winter than the Summer, becauſe all the Juices of the Body, more eſpecially thoſe that are extravaſated, will be more viſcid and ſizy, and ſo continue, till the ſucceeding Warmth communicates a certain Degree of Motion to the Particles that compoſe them, by which Means they become rarefied. It is upon this Account a hot and dry Air is recommended by Authors, not only in flatuous Tumours, but alſo in thoſe that are œdematous and aqueous. It is to be obſerved, that what we have ſaid here, has no Reſpect to a pure *Emphyſema*, it being very rare to be found, but only that which is mixed, which has always a viſcid Juice attending it. Here we may take notice, that thoſe Applications that refrigerate the Part, and thoſe that are oleous, unctious, or viſcous, are to be avoided in thoſe Sort of Tumours, becauſe they not only conſtipate the Pores of the Skin, but condenſe the Air that is in the Tumour, and ſo render it leſs fluid; upon which Account the Cure will be rendered much more difficult and uncertain, becauſe the Pores muſt be again enlarged, and the Matter muſt receive a proper Modification, before it is qualified for Perſpiration. On the contrary, thoſe Remedies that are ſtrongly diſcutient, which are enriched with a conſiderable Quantity of volatile, active, warm Particles, are adapted for accompliſhing a Cure, ſeeing they are all of them qualified for enlarging the Diameters of the ſudatory Pores, and having a conſiderable Effect on the moſt viſcid Parts of the Matter that remain behind: For by the Briskneſs of their Action, they ſo agitate their Particles, as to diſunite their firm Coheſion, and give them ſuch a different Form and Degree of Solidity from that they had before, as diſpoſes them to paſs off, through the enlarged Orifices of the Ducts, that carry off the perſpirable Matter. It is upon this Account that the holding a Part that is ſo diſordered before the Fire, and applying hot Cloths to it, may be ſucceſsfully made uſe of, as *Fienus*, in his Treatiſe *de Flatibus*, aſſures us.

Riverius, in the third Book of his Obſervations, *Obſ.* 213. informs us of a Woman of 30 Years of Age, that had a Swelling for eight Months, in the lower Part of the Thigh, and on her Knee; it was not red, but it pained her ſo that ſhe halted. Many diſcuſſing Remedies being applied, the Tumour remained as it was, at laſt in two Places, *viz.* on the Inſide and Outſide, there appeared a remarkable Riſing, and round about it Softneſs and Fluctuation, ſo that all conceived there was *Pus* within; a Potential Cauſtic was applied to the moſt ſwelling Part, which was the outer. Afterwards the Eſchar being divided, and the Tumour opened, there came out a certain Wind, and nothing elſe. There is a parallel Hiſtory to this in *Zacutus Luſitanus*'s firſt Book of his *Prax. Admirand. Obſ.* 163. where from *Galen* and *Avicenna*, he aſſures us, that ſuch Tumours as theſe in the Knee, are many times opened, ſuppoſing there is *Pus* concealed within, whereas nothing comes out but a windy Spirit.

Foreſtus, in his *Obſ. Chir. lib.* 3. *Obſ.* 3. tells us, he cured a certain Perſon of a flatuous Tumour on his Knee, by the following Cataplaſm, (Generals having preceded) ℞. *Sem. Aniſi ſubtiliter pulveriſati, Sem. Feniculi, Cumini, Carui, ana Quart. ſſ. Farinæ Fabarum* ℥i. *Succi Eluli & Sambuci, Vini Arom. ana q. ſ. decoquendo fiat Cataplaſma.*

Observation XXX.

Of an Atrophy of the Leg and Foot.

A Gentleman about 34 Years of Age, had for near two Years been very much incommoded with an Atrophy of his left Leg and Foot; for the Cure of which he had patiently indured the various Attempts of Phyſicians and Surgeons both in *England* and *France*, who made uſe of internal and external Means, as dietetic Drinks, Plaiſters, Lineaments, Embrocations, Baths natural and artificial, &c. but with little Succeſs. Some conſiderable time after the Uſe of theſe Means, he being on Horſeback, coming to *London*, his Horſe, by ſome Accident, fell with him, and violently contuſed the emaciated Member, which excited an Inflammation of the Parts, and violent Pain, whereupon an experienced Surgeon was conſulted, who as ſoon as the Patient was laid in his Bed, involved the contuſed Member in the Skin of a Sheep juſt killed, and that Night ordered a Diaphoretic. By the Continuation of the Sheepskins two or three Times a Week, for ſome Time, the Dimenſion of the Parts were evidently enlarged; and in a ſhort time after, they re-aſſumed their natural State, and performed their Offices as before. During the Uſe of thoſe Means, and for ſome time after, he lived regularly, and took a Decoction of *Sarſa.* with his other Preſcriptions as were ordered. Thus was this Gentleman perfectly recovered, that for near two Years before could not walk without the Aſſiſtance of two Servants to ſupport him.

REMARKS.

A Neceſſary Reflection on this ſurpriſing Hiſtory obliges us to take notice of the Method of the Antients uſed in the Cure of an Atrophy: Seeing we conceive the accidental Cure of the above-mentioned Gentleman, depended as much on the Effect of Contuſion, as theirs on that of Percuſſion, the natural Conſequence of both being an Inflammation of the Part. It is obſervable, that the Antients, after the Uſe of Dropaciſms or Pications, uſed to ſtrike the emaciated Part with Ferulas, till it became tumefied, inflamed, and painful; but how theſe effected a Cure, may in a great Meaſure be conceived by what we ſhall advance in endeavouring the Explanation of the Cure of this Gentleman: To give a probable Account of which, we muſt conceive that the Contuſion diſſolved the Continuity of ſome of the ſmall Veſſels, which emitting the little Quantity of Blood they contained, it ſoon coagulated, and would have corrupted, its putrefactive Principle being ſet at Liberty; but to prevent this, the vital Powers rallied up all their Forces, and immediately detached a greater Quantity of Blood and Spirits to the Part than uſual, which diſtending all the minute Ramifications of the Veſſels, tumefied and inflamed it; by this Means the ſtagnated Matter was attenuated, and qualified for Diſcuſſion, which was effected by the Application of the Sheepſkin; after this, the Spirits re-aſſuming their ordinary Courſe, and the Motion of the Blood being more fierce and fervent in the Part, the contracted Fibres of the Veſſels were expanded, and the Courſe of the Blood and Spirits continued, without any Interruption. *Charleton*, in his *Oeconomia Animalis*, endeavours to prove the Parts are nouriſhed by the *Succus Nutritius* of the Nerves, and to fortify his Hypotheſis, brings an Example of an Atrophy that ſucceeded a Puncture of a Nerve; but thoſe Gentlemen that endeavoured to eſtabliſh that Opinion, gave Credit to a groundleſs Notion concerning Nutrition, *viz.* that the Subſtance of the ſolid Parts of the Body was in ſome Meaſure daily expended, and that the nutritious Juice was united to the Parts during the whole Courſe of a Man's Life. Now Nutrition ſeems to be nothing more than a maintaining a Plenitude of the whole veſcular Compages, with proper Matter; ſo that an Atrophy muſt be conſequently a ſubſiding of the Parts, by reaſon of a Defect of proper Fluids to keep their reſpective Tubes in their due Diſtention; not but we muſt allow that a Deficiency of Spirits in a Part, may cauſe the like Effect; thus, in a Palſy, the Member is frequently emaciated to a great Degree; the Reaſon of which ſeems to be an Obſtruction of the Nerves, which intercepts the Influx of the Spirits into the muſcular Fibres, by which Means the

Parts are not tumefied or inflated, nor the Veſſels turgid; all which, as Dr. *Havers* obſerves, entirely depends on the free Motion and Energy of the Spirits flowing into them. From hence we may conclude, it is not reaſonable to ſuppoſe, that though the Blood does in ſome Meaſure continue its Courſe through a paralytic Part, that the Veſſels will be ſo much expanded, as when the Parts are inflated by the Influx of the Spirits; ſo that the Conſequence of this muſt be a remarkable Alteration in the Dimenſions of a Part.

There are ſeveral Examples related by Authors of very remarkable Cures that have been wrought by ſome extraordinary Accident, ſome of which we ſhall take notice of, becauſe we are not furniſhed with an Obſervation pertinent to that Caſe laſt related: *Ægrotorum quidam ex maximis ſæpe morbis, omnem medicam manum eludentibus, caſu ſæpius & fortuito liberantur. Leſſ. Obſ. Med.* p. 17. *Sckenkius* informs us of a certain Epileptic Perſon, that happening to have a fractured Skull, was cured of a Diſtemper which he had been for many Years afflicted with. *Hildanus* likewiſe gives us an Inſtance of a Wound of the Head that proved very ſerviceable to the Patient: It was of a certain Perſon that had the *Cranium* fractured, juſt at the Concourſe of the ſagittal and coronal Suture, by which Means he was cured of a *Vertigo* of long Continuance. It is obſervable there remained a ſlight Ulcer on the Place of the Fracture,

ture, which perhaps effected this Cure, by the Diſcharge of Matter. *Riverius*, in his Communicated Obſervations, *Obſ.* 382. relates a very remarkable Hiſtory of a Boy that was deaf and dumb, that after the hinder Part of his Skull had been fractured, and cured by the Induſtry of a ſkilful Surgeon, he perfectly recovered his Senſe of Hearing and his Speech. It is to be obſerved, the Pronunciation of his Words were very imperfect at firſt, though afterwards he ſpoke very perfectly. We might here add two or three Inſtances of Perſons that have been cured of an *Aſcites*, by the accidental Diſcharge of the Water, on a Diviſion of theſe Teguments; but theſe Caſes and others no leſs remarkable, are very frequent in the Writings of ſome Authors that have obliged us with the Hiſtories of diſeaſed Perſons.

OBSERVATION XXXI.

Of Condylomata, Ficus, Mariſca, &c.

A Young Man of about 18 Years of Age, being with a Companion of his that had ſome time before contracted a *Gonorrhea*, ſuffered him, not knowing his Condition, to ſatiate his abominable ſodomitical Inclination, for which ſeveral Perſons have been lately very juſtly puniſhed by the Government. This Perſon, though he thought his Secrecy a ſufficient Protection, was not long exempt from the Puniſhment of the Effects of it; for in a Month's Time ſeveral Excreſcences began to ariſe about the *Anus*, which in four or five Months were increaſed to the Bigneſs of a Child's Fiſt. The Tops of ſeveral of theſe about this Time became excoriated, which had the ſame Effect on thoſe Parts that were contiguous to them: This created ſo great an Uneaſineſs, that the Perſon could neither ſit or walk without a great deal of Trouble. Soon after ſeveral of them became ſo much exaſperated and inflamed, by the rubbing the Parts one againſt another, that he was obliged to diſcover it, and confeſs what he had through Shame concealed to this Time. It is obſervable, that about ſix Months after the Act was committed, he began to be ſenſible of Pains in his Shoulders, Arms, and Legs, after he began to be warm in his Bed, which increaſing, he had Recourſe to proper Means for Cure. The firſt Thing that was done, was the Removal of thoſe Excreſcences, which according to their reſpective Figures, go under the Denomination of *Condylomata*, *Ficus*, *Criſtæ*, *Mariſca*, and *Morus*; each of theſe was clipt off cloſe to its Baſis, the largeſt of which were touched with the Lunar Cauſtic; others, that were not ſo broad, being only rubbed with the

Vitriol Stone every Day, and dreſſed with a Solution of the ſame; thus was this mighty Heap conſumed, and the Patient perfectly cured of his Diſtemper, by going through a ſlight Salivation.

REMARKS.

THERE is nothing more certain, then that the uſual Diſtemper may be contracted ſeveral Ways; but, as *Etmuller* obſerves, its Symptoms diſplay themſelves moſt in the Part through which the Virulency is firſt conveyed. If a Nurſe be infected, ſays he, by a Sucking Child, her Breaſts are firſt attacked. If the Diſeaſe be contracted by lying in Bed with a foul Perſon, the Skin and Surface of the Body, are the chief Places where its Retainers aſſemble. If the Embraces of a foul Woman gave Being to it, the *Penis*, Groin, and adjacent Parts, are the firſt Scene of its tragical Appearances. To this we may add, that the Part which firſt received the Virulency, in the preceding Caſe, was the firſt that had the Venereal Character imprinted on it. It is the Softneſs, Laxneſs, and Spungineſs of the Part, that diſpoſes it for receiving and propagating the virulent Matter, ſooner than if it were more cloſe and compact: It is for this Reaſon, the Virulency has a more immediate Effect on the Juices that water the Part; for it is not long before it communicates a corroſive Quality to them. Now no ſooner do they receive its ill Impreſſion, but they become capable of eroding the Sides of their reſpective Veſſels; upon which they are preſently diſengaged from them, and cauſe ſuch Alterations,

terations, as ſuch depraved Juices are qualified for. The firſt Effect they have on any Parts, are probably ſome neighbouring Fibres, which, with ſome capillary Veſſels, become diſpoſed to be lengthened and enlarged. Now theſe being kept continually diſtended by the Acceſs of freſh Juice, ſhoot themſelves out, and enfold themſelves within the Windings of each other, ſo as to form ſuch Excreſcences, whoſe various Figures, which are owing to the different Combinations of the Fibres and Veſſels, give each of them different Names whereby they are diſtinguiſhed.

Observation XXXII.

Of a very large ſcirrhous Liver.

A Young Woman of about 17 Years of Age, was by an enraged Perſon ſtruck a violent Blow with an Iron Poker acroſs the *Hypochondrium.* The Effects of it at firſt were nothing more than might be reaſonably expected, from a Contuſion of the Integuments only, and were removed with the ſame Eaſe by the uſual Applications: Soon after, a Tumour was obſerved to ariſe on the Part where the Blow was received, which continued to increaſe for near three Years, at which Time it appeared to be of a very monſtrous Size. The Perſon, in giving us an exact Relation of her Caſe, aſſured us, that about a Year and half after the Commencement of her Diſorder, ſhe began to be afflicted with a continual Coſtiveneſs;

neſs; and that afterwards ſhe never had a Stool, without it was procured by ſome Medicines that were proper for ſuch an Occaſion. The other Diſorders ſhe complained of, were a Difficulty of Breathing, violent and continual Pain of her Head, and of her Stomach, as ſoon as ever what ſhe ſwallowed paſſed through its upper Orifice, which was likewiſe very much aggravated, by any thing that was of a pretty ſolid Subſtance; upon which Account ſhe ſeldom took any other Aliment than what was fluid. During the Time of her Indiſpoſition, ſhe continued to take thoſe Medicines that were ordered her internally, from which ſhe received no more Relief than we have taken notice of; the external Applications were nothing more than the Repetition of proper Plaiſters, which ſhe received no ſenſible Benefit by.

REMARKS.

THAT the Liver was chiefly affected in the preceding Caſe, we may eaſily collect from the Symptoms that were obſerved, they being ſuch as muſt neceſſarily happen on ſuch a Diſcompoſure of this Part. Now every one (ſince *Malpighi* diſcovered the Fabric of the Liver) owns it to be chiefly compoſed of little glandular Bodies, whoſe Uſe is to filtrate a Juice from the Blood, that is of extraordinary Service in the Animal. Upon this Account, if theſe little Lobes are ſo diſordered, as to render them uncapable of being uſeful in that Office the Author of Nature deſigned them for, the Juices will unavoidably ſtagnate, and the whole receive ſuch an Alteration, as is agreeable to the mechanical Structure of the Part. Sometimes in diſſecting hydropic Bodies, we have diſcovered abundance of the little Glands to be perfectly ſcirrhous, which was probably occaſioned by too great a Viſcidity of that Juice which ought to have been qualified for paſſing freely through them. As for thoſe ſcirrhous Livers that are occaſioned by a Contuſion, the little Lobes that are placed on the Surface of the Liver ſuffer the firſt Contuſion of their Parts, and not being capable of performing their Office, the others having a Dependance on them, by Degrees ſuffer much the ſame Alteration as thoſe that were firſt affected. To have an exact Idea how this muſt neceſſarily happen, we ought to remark that each of thoſe little glandular Bodies conſiſts of a minute Extremity of an Artery rolled up, to which is connected a ſmall Branch of a Vein, and biliary Veſſel; through the latter there paſſes a peculiar Liquor whoſe Particles are of ſuch a Figure, as qualifies them for paſſing freely into it, ſo long as the former Veſſels retain their natural State, but if by a Blow, or any other Means, the Veſſels that compoſe ſome of the little Lobes, become diſtorted or broken, the Filtration cannot be carried on with that Exactneſs as is neceſſary to maintain a regular Order in the Animal Oeconomy; but the Blood, as it continues to move forward in the ſmall Arteries, when it arrives at thoſe Parts where their Paſſages are diſcompoſed, the Celerity of its Motion muſt be very much leſſened, if not altogether ſtopped, upon which Account they become diſpoſed to fill with the moſt viſcid Matter the Blood can ſupply; for it is obſervable, the moſt fluid Parts of the Blood paſs thoſe Channels where there is the leaſt Reſiſtance, while the Viſcidity of the other Parts entitles them to aſſume that Courſe where the Motion of the Blood is moſt embarraſſed. From theſe Premiſes we may reaſonably conclude, that the Motion of the Blood, and Secretion of the Bile being interrupted in ſome of the ſmall Glands, thoſe that were contiguous to them, muſt be gradually diſordered, and the whole *Viſcus* at length diſpoſed, by the large Influx of Blood, ſtocked with a viſcid Matter, to enlarge itſelf to ſuch a prodigious Degree, as we have taken notice of. It is obſervable, as the Liver increaſed in Bigneſs, the Integuments in that Place continued to be raiſed, till at length the Tumour appeared to be of ſuch a Form as was agreeable to the convex Part of the Liver, that preſſed againſt them from within. As for the continual Coſtiveneſs the Perſon was afflicted with, it muſt unavoidably happen when the Bile is no longer diſcharged into the *Duodenum*, to ſtimulate the Fibres of the Inteſtines, by its Acrimony, to perform the periſtaltic Motion. The Difficulty of Breathing muſt neceſſarily enſue on ſuch an Enlargement of the Liver, becauſe, by its Preſſure on the *Diaphragma*, it leſſens the Cavity of the Breaſt, and ſo conſequently prevents a regular Reſpiration. The violent Pain that was occaſioned by the paſſing of the Aliment through the upper Orifice of the Stomach, may be as eaſily accounted for by reflecting on the continual Compreſſure the Part was obliged to ſuffer. The Stomach being diſordered, the Head muſt neceſſarily be affected by Means of the mutual Correſpondence of their Nerves. And thus we ſee how the Oeconomy of our Machines is regulated, and what a Dependance one Part has upon the other, for carrying on that regular Order that was eſtabliſhed by the firſt Mover of the Springs.

OBSERVATION XXXIII.

Of a Polypus *in the Noſe extracted.*

A Youth about 15 Years of Age, had for ſome Time been incommoded in Reſpiration, by Means of a ſoft whitiſh Excreſcence, which ſeemed to proceed by ſome ſmall *Pedunculi* from the internal pituitary Membrane, that inveſted the *Foramen* of the right Noſtril. This ſpongy Subſtance, before it arrived to any conſiderable Bigneſs, was attempted to be conſumed by Catheretics, which were commodiouſly conveyed to the Part without the leaſt prejudicing the *Septum*, but not without ſome Trouble and Pain to the Patient: This Method proved unſucceſsful, for beſide the frequent Hemorrhages it produced, the Excreſcence was ſuppreſſed but very little; in a ſhort time after it inſenſibly increaſed to ſuch a conſiderable Degree as to occupy the greateſt Part of the Noſtril, and forcing out one of its Sides, it conſiderably enlarged the Dimenſions of the Part, and made the Face deformed; whereupon its Extraction was propoſed, and was thus effected. A peculiar Pair of *Forceps* being introduced into the Noſe, the Ends of them, which were fitted to encompaſs great Part of the Excreſcence, were dextrouſly applied to the Sides of it, which ingaged it to its very Baſis. After this, by turning the Inſtrument from one Side to the other, and at the ſame time gradually pulling with the *Forceps*, it was extracted. A ſmall Flux of Blood enſued, which was immediately ſtopped by applying the following Powder to the Part, ℞ *Vitriol. Uſt.* ʒii. *Bal. Ner.* ʒii *m.*. This was made uſe of for the two or three Days ſucceeding, which infallibly ſuppreſſed the remaining Parts, that in all Probability, by the Acceſſion of new Matter, might have given Original to ſuch another Tumour.

REMARKS.

THAT we may have an exact Notion of the Formation of a *Polypus*, we ought in the firſt Place to take notice of the Structure of the internal Membrane of the Noſe, ſeeing we conceive it chiefly contributes to the Generation of this carnous Excreſcence. This pituitary Membrane that inveſts all the Meanders of the Noſtrils, conſiſts chiefly of an infinite Number of ſmall Glandules, diſpoſed after a regular Manner, that ſeparate that Humour which diſcharges itſelf by the Noſtrils, after it is diluted with a Liquor that the *Foramen Lacrimale* furniſhes. Now this being premiſed, it will be an eaſy Matter for us, by reflecting on ſuch a Diſtribution and Order of Parts, to comprehend that a *Polypus* proceeds from a Diſorder of ſome of the ſmall Veſſels, of which thoſe Glands are formed that chiefly compoſe that Membrane we have taken notice of. This Diſcompoſure muſt neceſſarily occaſion an Interruption of their Filtrations, by confounding the Paſſages of the excretory Veſſels, by which Means the Humour ſtops in the Texture of the Glands, where it conſequently obliges them to dilate and expand themſelves, till by the Weight of the Juice they contain, the external Plate of the Membrane that covers them is forced to give Way, and form as it were a Bag that is capable of being enlarged conſiderably by the continual Supply of freſh Matter. This Manner of its Formation may ſeem very rational, if we do but conſider that an exact Examination of its Subſtance after Extraction, demonſtrates it to conſiſt of a glandular Subſtance, diſtended with a pituitous Humour, which is inveſted with a fine Tunicle. As for the Form of the *Polypus*, it is ſuch as muſt neceſſarily happen from ſuch a Diſpoſition of the Parts, and ſuch Circumſtances we have taken notice of. It is obſervable, that *Hippocrates* always confounded this Tumour with a *Sarcoma:* Now a *Sarcoma* ſeems to proceed from the Operation of ſome Juice that is qualified for eroding the Glands and *Tubuli* of the internal Membrane, by which Means the capillary Extremities of the Blood Veſſels are diſpoſed to ſhed ſome Particles, and extend and fold themſelves one within another, which is capable of forming a Subſtance that very well deſerves the Name it is generally diſtinguiſhed by.

OBSERVATION XXXIV.

Of a Paracenteſis *performed.*

A Woman about 36 Years of Age, had for ſome time laboured under an *Aſcites*, with anaſarcous Swellings of her Feet, Legs, and Thighs: Theſe Humours at firſt in the Night-Time almoſt diſappeared, but the ſucceeding Day they re-aſſumed their former State. The Diſeaſe was attended with a continual ſlow Fever, Difficulty of Breathing, inſatiable Thirſt, and an almoſt total Suppreſſion of Urine; ſhe had likewiſe ſeveral ſmall cuticular Eruptions, which continually moleſted her with their troubleſome Itchings. Various Means had been made uſe of for a conſiderable Time, in order for Cure, but with very little Succeſs; on which Conſideration it was unanimouſly agreed, in a Conſultation of Phyſicians and Surgeons, that the *Pa-*

racenteſis ſhould be performed, provided the Patient would comply with the Propoſal: This being agreed to, the Operation was effected after the following Manner. The Patient being ſeated in a large Chair, the Operator placed himſelf commodiouſly before her, and at one Thruſt pierced the Belly with a Trocher, accompanied with its *Canula*, about four Fingers Breadth below the Navel, and much about the ſame Diſtance on one Side; by this Means he avoided penetrating the *Linea alba*, wounding the Epigaſtric Veſſels, and the Innervations of the *Muſculus Rectus*. After this, the Trocher being drawn out of the *Canula*, a free Paſſage was given to the Water to make its Exit. A ſufficient Quantity being diſcharged, which did not exceed three Pints, a ſmall Tent was introduced into the *Canula*, over which was applied an adheſive Plaiſter, with Compreſs and Bandage adapted to the Part. The next Morning the Patient ſeemed ſome-

what

what relieved by what had been diſcharged the preceding Day; whereupon much about the ſame Quantity was taken away. The third Day all Things appeared under worſe Circumſtances than the Day before, and ſo continued till the next Morning, at which Time Death put a Period to her miſerable Life. On Diſſection, a vaſt Quantity of urinous Liquor diſcharged itſelf from the *Abdomen*; the Glands of the *Peritonæum* were ſo indurated and enlarged, that they became conſpicuous to the naked Eye, which is only obſervable in Hydropic Bodies; the *Omentum* appeared of a blackiſh Colour, and was perfectly putrid and rotten; the Liver was preternaturally large, and its whole Subſtance intirely ſcirrhous; but a few Drops of Bile were contained in the Gall-Bladder; the Colour of the Spleen was very little altered, but its Size was conſiderably larger than is naturally obſerved. There was no remarkable Alteration in any other

Parts in the *Abdomen*, except a few *Hidatides*, which were interſperſed on the Surface of the Kidneys and *Tubæ Fallopianæ.* In opening the Breaſt there appeared nothing worth Obſervation but the Lungs, the Largeneſs and Compactneſs of which was very remarkable ; but this probably proceeded from nothing more than the Infarction of the Veſſels with Blood, they always containing a much greater Quantity in aſtmatic Perſons, or thoſe that breathe with Difficulty, than in others, and this muſt neceſſarily happen, becauſe it has not a free Paſſage through them. It is obſervable, that one of the Lobes of the Lungs was ſo firmly connected to the *Pleura*, that it could not be eaſily diſengaged from it.

REMARKS.

THERE are ſeveral phyſical Authors that have given their Sentiments concerning the Cauſes that contribute to the Formation of a Dropſy, with a great deal of Probability, to which we refer the Reader for Satisfaction; only here let us obſerve, that a Conſtipation of the Emunctories of the Body, which is always ſucceeded by a Suppreſſion of Urine, and that of inſenſible Tranſpiration, frequently enter into the Liſt of the Cauſes, or are its inſeparable Companions. Now it is eaſy to conceive, that if theſe ſaltiſh Seroſities are not duly filtrated by the Glands of the Kidneys, and evacuated, Sweat and inſenſible Tranſpiration being at the ſame Time ſuppreſſed, the Blood muſt be neceſſarily clogged with ſo great a Quantity of it, that its *Craſis* is ſoon vitiated, and it becomes altogether incapable of aſſimilating any proper Particles, ſo that its whole Maſs becomes crude and undigeſted: From hence we may rationally conclude, that ſome ſmall Fermentation may be excited by thoſe Salts that deſtroy the Coheſion of the Particles of the Blood, which circulating through the Heart, may diſorder its Motions; and this being communicated to the Arteries, may give Original to their irregular Pulſations. To explain the Cauſe of the Difficulty of

Breathing, we need only remark the vaſt Quantity of Water in the *Abdomen*, which diſtending the Parts beyond their natural Degree, preſſed the *Diaphragma* very conſiderably into the Cavity of the Breaſt, by which Means its Capacity was greatly diminiſhed, ſo that the Lungs not having Liberty to expand themſelves, Reſpiration muſt be conſequently performed with a great deal of Difficulty. To have an Idea of the Cauſe of the inſatiable Thirſt, it is neceſſary for us to underſtand, that the *Saliva* of Perſons in a State of Health, which is by Nature ordained to humect the internal Parts of the Mouth, and to be a proper *Menſtruum* for the Diſſolution of the Aliment, is impregnated with certain acid Particles, which the better qualifies it for allaying the Thirſt; but in ſuch a Caſe as the preceding, where the whole Maſs of Blood was ſaturated with lixivious Salts, the Secretion made by the ſalivary Glands, which had loſt their natural Tone, could never be ſo exact but that the filtrated Liquor muſt partake of a conſiderable Quantity of thoſe Salts, which will undoubtedly produce ſuch an Effect; beſide this, the Viſcidity of the Blood was ſuch as muſt neceſſarily leſſen the Filtration of this Fluid. The Suppreſſion of Urine proceeded from an Obſtruction of the little glandulous Grains, of which the Kidneys were compoſed, which not performing their Office of Secretion, the Seroſities were obliged to return and diſcharge themſelves into the Capacity of the Belly. In order to account for thoſe continual Itchings that perpetually moleſted the Patient, let us take notice, that the Parts which paſs from our Bodies by Tranſpiration, are Salts diſſolved in Phlegms; that they are ſeparated from the Blood, by means of an infinite Number of ſmall Glands, which are ſituated under the Skin, and whoſe excretory Veſſels end at ſmall Holes, which are on the Surface of the Body, and are termed Pores. Now it is highly probable, that thoſe ſaline Particles that ſhould have paſſed off with the reſt of the perſpirable Matter, were detained in thoſe little milliary Glands, where the Juices became ſaturated with theſe, by which Means they were capable of eroding the Texture of the Glands, and ſo cauſing little Ulcerations. Now the Angles of thoſe Salts, by irritating the little nervous *Fibrillæ*, might occaſion thoſe troubleſome Itchings the Patient was ſo ſubject to. Moſt of the modern Anatomiſts that have treated of the Uſe of the Spleen, have been divided in their Opinions, and puzzled in adjuſting its true Uſe: However, ſome of them have aſſerted, it is one of the moſt uſeleſs of all the *Viſcera*. But be its Uſe what it will, we are certain in morbid Bodies we have found it diſordered as often as any other *Viſcus*, which one would think is ſufficient to prove it has a conſiderable Uſe, and is of very great Service in the animal Body. In one particular Perſon that died of a gangrened Ulcer on his Leg, it weighed five Pound four Ounces. The Operation of the *Paracenteſis* is very commodiouſly performed after that

Manner we have taken notice of; but ſome Perſons aſſured us it is very rarely ſucceſsful. *Barbet* ſays, if we expect a good Iſſue of the Operation, we muſt uſe it only on a Body that is not emaciated or waſted: In a Dropſy that is recent (or at leaſt when the Tumour in a ſhort Time hath riſen to a great Bulk) and which upon the Uſe of proper Remedies would not preſently be removed; in ſuch Patients as are not moleſted with a Fever, or with Difficulty of Breathing, and when the Parts are yet uncorrupted; and in Perſons of a middle Age, ſince in Children and in old People it is unſucceſsful. However, we are very well aſſured, it has been practiſed with all the Succeſs imaginable; and there are ſeveral hiſtorical Authors that have given us Account of Perſons that have been recovered from this Sort of Dropſy, by the accidental Diſcharge of the Water on a Diviſion of the Integuments of the *Abdomen*; but ſee more of this in the Writings of *Beniverius*, *Amatus Luſitanus*, *Valeriola*, *Vidus Vidius*, *Marcellus Donatus*, *Sckenkius*, *Laurentius*, *Fienus*, &c. M. *le Clerc*, in his Hiſtory of Phyſic, informs us, that *Hippocrates* performed the *Paracenteſis* not only near the Navel, but alſo behind near the Hips; and that he takes expreſs Notice that very few are cured this Way: In another Place he gives a Caution, that the Operation be performed betimes, and that Care ought to be taken not to draw away all the Water at one Time, becauſe thoſe that loſe all the *Pus* or Water at once, infallibly die.

OBSERVATION XXXV.

A Boy about 10 Years of Age, on the Termination of a tedious Diſpoſition of Body, had a pretty large Tumour aroſe on the right *Hypochondrium:* At firſt it was inflamed, and attended with pulſitic Pains, and would have probably ſuppurated in a very little Time; but by the continued Application of Cataplaſms that were ordered by ſome Women, in which the chiefeſt Ingredient was Hemlock, the Swelling became very much indurated, was cold, and of ſo ill a Colour, as ſeemed to threaten a Mortification. However, after a Month or five Weeks Time, it diſcharged its Matter (which was purulent and fœtid) by a ſmall Apertion it made through the Integuments; upon this an experienced Surgeon was conſulted, who, on a Diviſion of the Abſceſs, diſcovered a ſmall Quantity of the Excrement to come away with the Matter. This continued to diſcharge for at leaſt three Months, during the greateſt Part of which Time, he was ordered to lay chiefly on his Back, that the Excrement might the ſooner re-aſſume its ordinary Courſe, and the Inteſtine be diſpoſed to re-unite. To this latter, the thin Diet, and traumatic Decoction he was confin'd to, did not a little contribute. There was a Clyſter given him, or a Suppoſitory made uſe of, every Day, to bring away ſome Part of the *Fæces* that otherwiſe, by its Stay, might become indurated, and ſo probably obſtruct the Paſſage of that which came behind it, and oblige it to ſolicit its Diſcharge at another Place, which would have been very inconvenient, the Abſceſs being brought to a tolerable good Digeſtion. It was dreſſed with a Decoction of *Hyper. Cent. & Rad. Gent.* to which was added a little Honey.

This deterged and incarned it in three Weeks Time, and in leſs than a Month after, he became perfectly well, and ſo continued, he being living at this Time.

REMARKS.

FÆCES *alvi, quæ ſecundum naturam per inteſtinum rectum & anum evacuantur* (ſays the celebrated *Sennertus) quandoque præter naturam per alia loca excernuntur.* And indeed this Aſſertion is abundantly confirmed by Examples related by Authors. *Mercurialis, Schenkius,* and *Thom. a Vega,* inform us of Perſons that diſcharged their Excrements by their Mouths. *Alex. Benedictus* relates the Hiſtory of a Boy, that after an Abſceſs, had great Part of the Excrement came away every Day by the Navel: And there is much ſuch a Story in *Cardan de Subtilitate, lib.* 18. *Fernandus Senior* has given an Account of a Perſon that diſcharged his *Fæces* through his *Penis.* There is nothing more certain, than that Nature may be ſometimes obliged to vary her eſtabliſhed Laws, when there is ſuch a Defect in the Conformation of ſome particular Part, as that *Hildanus* takes notice of, *Cent.* 1.*Obſ.* 75. where, by reaſon of an imperforated *Anus,* the Excrement found a Paſſage through the *Meatus Urinarius* in a Woman with the Urine: But where there is a Perforation of one of the Inteſtines by a Wound or Ulcer, Part of its Contents will unavoidably diſcharge themſelves, as they continue to be puſhed on by the Action of the inteſtinal Fibres. It is very probable, that the Hemlock that was uſed on the firſt Appearance of the Tumour, in the preceding Caſe, by its cold and repercuſſive Quality, did not a little contribute to produce thoſe ill Effects that ſucceeded the Uſe of it. *Pliny* and *Dioſcorides* have given it a very ill Character; and it is moſt certain, from its cauſing a Stagnation of the Juices in a Part, and preventing its Increaſe, for which it was recommended by ſome of the Antients, it may probably be attended with ſuch Accidents as may not be eaſily recoverable; and this it will the ſooner effect in ſuch a Caſe as that abovementioned, where the Tumour being cauſed by a Criſis of the Diſeaſe, did not require ſuch cold Applications, but thoſe that were qualified for ſetting at Liberty the combatant Particles that ſhould have promoted Suppuration. It was a very unhappy Caſe, that a poor Boy about eight Years of Age laboured under, who having a cold hard Tumour about the Navel for ſeveral Months, was committed to the Care of a Perſon, that by the Means he made uſe of, ſeemed not to be apprehenſive of the dangerous Condition he was in, the Tumour conſiderably increaſing, but without any Manner of Pain, except what was occaſioned merely by the Diſtention of the Parts: After ſome time it opened of itſelf, and a conſiderable Quantity of Matter, of an ill Colour and Smell, diſcharged itſelf, the Orifice being gradually enlarged by putting in Tents of different Sizes; a Quantity of the *Fæces*, with ſome Worms, daily came away with the Matter, the Smell of the Excrement being as offenſive as if it had been diſcharged by the *Anus*. In ſhort, all the Excrement that came away, ſoon after found a Paſſage through the Abceſs; the Boy loſt his Appetite, became extremely emaciated, and at length died. *Vauguion* aſſures us he has ſeen a Soldier who had one of the great Guts cut, which was joined by a Cicatrix to the Wound of the Belly, through which the *Fæces* paſſed, the *Anus* being cloſed up. The moſt obſervable Thing in this Caſe, was, the Excrement which he voided had no diſcernible Smell. The ſame Author relates from *Hildanus*, *Cent.* 6. *Obſ.* 72. that a Surgeon having the Misfortune to cut one of the great Guts in the Operation of the Bubonocele, the Gut cicatriſed to the Wound, and the Party voided his Excrements, and ſometimes Worms, by this Orifice.

Diemerbroeck gives us an Inſtance of a Perſon who laboured under a Bubonocele for many Years; at length the Inteſtine burſt, and the Excrement falling into the Cavity, was ſoon ſucceeded by a Gangrene: Proper Means were made uſe of for the Separation of the gangrened Parts; and this being effected, the Gut was found to be broken, the upper Part of which hung out, and gave Paſſage to the Excrement. This End of the Inteſtine afterward acquired a fleſhy Subſtance, which united to the neighbouring Fleſh, and gave Paſſage to the Excrement, which diſcharged into a little braſs Pot, which he commodiouſly carried for that Purpoſe. It is obſervable the Patient was not indiſpoſed in nine Years afterwards. The ſame Author gives us an Inſtance from *Platerius*, of a Captain, that after a Wound in the Belly, voided his Excrements through a Pipe for many Years, which was left in the Wound.

Rider, in his Practical Chirurgery, p. 61, 62, 63. *Obſ.* 24. relates the Hiſtory of a young Man that had the ill Fortune to receive a dangerous Contuſion from the End of a Coach Pole running againſt his Belly, a little below the Navel. The neighbouring Women had for a Week or more applied Poulteſſes of boiled Turnips and Sallet Oil; but at length, finding the Caſe to exceed their Capacity, our Author was ſent for to take care of him. When he came into the Room, he ſmelt a moſt filthy Stench, and removing their Poulteſs, he found the Excrements came through, and lay upon the Belly in a great Quantity; and that a Piece of the *Abdomen*, about the Bigneſs of the Palm of one's Hand, being of a livid Colour, began to ſeparate from the reſt. He applied Stupes hot from a Decoction of Centaury, St. *John*'s Wort, Roſemary, Wormwood, Cammomile, and Melilot Flowers, Rue, Agrimony, Speedwell, Bay-Berries, and Juniper-Berries, in equal Parts of Wine and Water; with this he fomented Morning and Night; he alſo at each Dreſſing injected ſome of the Decoction aforementioned, adding to it ſome *Mel. Roſ. Tinct. Traumat.* and a little Tincture of *Theriaca Andromachi*; and then turning him upon his Belly, that the Injection, together with the fœtid Matter and Excrements, might paſs forth, he applied Doſſils and Pledgets dipped in the ſame Injection warmed, to the Places whence the Matter and Excrements iſſued out, and upon them a Plaiſter of *Mithridate* ſpread on Leather, and over all a hot Stupe wrung out dry. In the mean time, the Patient wanted not for Cordial Juleps to refreſh and fortify his Spirits againſt the Malignity of thoſe venomous Vapours perpetually offending and debilitating him; and every other Day he took a Clyſter of a Decoction of vulnerary Herbs, with Syrup of Roſes ſolutive; the greateſt Part of which for above a Fortnight came forth at the external Orifices below his Navel: At length the Inteſtines did conſolidate, and the Clyſters came not through as before; the Matter grew thick and white, and little in Quantity: The large and deep Slough being caſt off, our Author incarned, and afterwards cicatriſed; ſo that in the Space of ſix Weeks he became well, and ſo continued.

OBSERVATION XXXVI.

Of a cancerated Arm amputated.

A Woman near 50 Years of Age, had a ſmall Tumour aroſe on her right Arm, a little below that Place where a few Days before ſhe had been let Blood: The Swelling at this Time being but inconſiderable, and not incommoding her in the leaſt Reſpect, ſhe omitted the making uſe of any Applications, and took but little notice of it, following her Buſineſs, which was Waſhing of Linnen, till by it's gradual Enlargement it became extremely troubleſome; at length ſhe thought herſelf obliged to apply herſelf to a Perſon that was recommended to her for the Removal of her preſent Diſorder. The Applications that were for ſome time continued to be made uſe of, were emollient, from which ſhe received no

Benefit, they only ſerving to relax the tenſe diſtended Teguments, and give Opportunity to the Increaſe of the Tumour; whereupon ſhe diſengaged herſelf from thoſe Hands, and committed herſelf to the Care of another Perſon, who by applying improper Means, increaſed her Pain to ſuch a Degree, as was almoſt inſufferable; beſide which, it was ſoon ſucceeded by a moſt horrid ſtinking Ulcer, with extraverted Lips, which with what elſe was obſerved, were diſtinguiſhing Characters of a Cancer: In this Condition ſhe continued a conſiderable Time, the Tumour continuing to increaſe till it was of a monſtrous Size: At length ſhe was adviſed to have her Arm amputated, there being no other Way to be propoſed with the leaſt Proſpect of Succeſs. This ſhe willingly complied with, which was effected as uſual. At the Removal of the firſt Dreſſing, which was three Days after the Operation, the Stump was obſerved to be extremely dry, there not being the leaſt Gleet or Moiſture, as is uſually obſerved on the Dreſſings; inſomuch, that in a Fortnight's Time, ſhe became very much emaciated and dried. The Particulars that were remarkable in the cancerated Arm, after its Separation from the Body, were a prodigious Maſs which ſeemed to be homogenous in itſelf, of a whitiſh Colour, and reſembled coagulated Juice. After it was cleared from the Membranes, and other Parts to which it adhered: And at leaſt half a Pint of Water, like Serum in Colour, diſcharged from ſeveral Cavities that were in its internal Subſtance. It weighed 3 Pound and 3 Ounces. There were ſeveral Branches that proceeded from different Parts of its Subſtance, each of which took a different Courſe from the other; a very conſiderable one there was that paſſed up the Arm, which was very near ſix Inches long, and of an unequal Bigneſs; ſome Part of it did not exceed the Largeneſs of a Gooſe-quill, while ſome others were near as big as the Top of the Thumb, which reſembled ſo many Knots in it; thoſe Branches were of a more tender Subſtance than the Body of the cancerous Maſs: About the Middle of the Branch it divided, and paſſed ſeparate about an Inch and a half, and then re-united. It is obſervable, there was double the Quantity of refluent Blood as is uſual, diſcharged in and after the Operation was performed.

REMARKS.

THE particular Enquiry we made into the Compoſition and Nature of the cancerous Maſs, was chiefly owing to ſome Circumſtances we met with in the Hiſtory of the Cure of a Cancer related by Mr. *Gendron* in his Treatiſe of the ſame Snbject. The Caſe, as it contains ſomewhat rare, we ſhall tranſcribe: A Perſon came to our Author who had an ulcerated painful Hardneſs in the Middle of his Forehead that could not be cured, and had the ſame Symptoms as the Cancer of the Skin. He was of Opinion to attempt the Cure by Eſcharotics, and having ſo done, the Scab being fallen off, the Ulcer was cicatriſed. Some time after, there appeared a little Hardneſs in the Scar, of a livid Colour, and painful, which made him reſolve to apply the ſame Remedy as before; and having ſo done, and in a greater Degree, when the Scab was gone, he thought he had no more to do than to bring the Ulcer to a perfect Scar: He began as before, with a greater Proportion of Corroſive; and the third Day of Application, being impatient for the Scab to fall off, he ſtirred it here and there, holding a Probe on the Middle of the Sore, when he perceived ſome white Filaments in the Space between the Scab and the Fleſh, which by a Probe were diſcovered to be hard: He continued to ſtir the Scab; then taking hold of it with an Inſtrument, and drawing toward him, he found it give Way, and drew along with it at the ſame Time thoſe white and hard Filaments, which put the Man to much Pain; they proceeded from ſeveral Places, ſome coming from that Part towards the Eye, others from the Noſe, while ſome again proceeded from above all the Forehead, from the Head. When he had got them looſe, he found them to be like the Beards or Roots of Onions or Leeks. He made no Doubt of a Cure; in ſhort, a Plaiſter healed the Sore. All the Reflections we could make on thoſe white Filaments, were not capable of ſatisfying us what they were, or how they were produced; upon which Account we were reſolved, the next Opportunity that offered itſelf, ſtrictly to enquire into the cancerous Subſtance, and ſee if we could diſcover any thing that had a Reſemblance to thoſe Filaments or Branchings-out. The abovementioned Caſe was the firſt that came in our Way, and obliged us with the Diſcovery of what we have taken notice of. After this, we examined Cancers of the Breaſt, but could diſcover none of theſe Branches, which gave occaſion to believe, they were never to be found where the Cancers ſpring from a Diſcompoſure of the Glands; for in this Caſe the coagulated Lymph ſeems to be confined to the glandular Subſtance, to which it is ſo firmly united, that it ſeems to form one uniform Subſtance, too ſolid to ſuffer any Part of it to make its Eſcape into any Vacuities where they might be formed. One would think that Reaſon might inform us, that if ever we expect to be perfectly acquainted with the true Cauſe, Compoſition, and Method of the Formation of Cancers, we muſt diligently apply ourſelves to the anatomizing of them, and with all the Scrutiny imaginable examine their Subſtance; for by this Means we ſhall ſoon undeceive ourſelves, as to thoſe Things which the Antients, for want of an exact Knowledge of the Juices, were obliged to give Credit to. The prodigious cancerous Maſs we have made mention of, as it appeared to be a homogeneous Subſtance, altogether exempt from the Intermixture of Veſſels, or any other Parts, was at firſt probably nothing more than a viſcid Juice, coagulated by ſomewhat that was capable of cauſing ſuch an Alteration in it: What we may reaſonably ſuppoſe that to be, we ſhall take notice of when our Diſcourſe leads us to it; at preſent we are obliged to examine what Fluid our Bodies contain, that is qualified to undergo ſuch a Metamorphoſis. Thoſe that were of Opinion, that ſome particular Alterations in the Blood were the efficient Cauſes of Cancers, were altogether unacquainted with the lymphatic Juice, the Diſcovery of which is owing to the happy Induſtry of modern Anatomiſts. Indeed, we ought to do this Juſtice to the Antients, as to believe, had they been acquainted with this Fluid, they had never eſtabliſhed their melancholy, atrabilious, and aduſt Blood to be the Cauſe of Cancers, ſeeing they might very well account for their livid Colour and Ulceration, by reflecting on the Mechaniſm of the Parts, and gradual Increaſe of the Cancer: This it is that gives us an Idea of theſe Things, quite different to that of our Predeceſſors; which aſſures us it is a Compoſition of ſuch Parts, which, when united, are diſpoſed to coagulate, as ſoon as the Fluid they compoſe is extravaſated. That which contributes very much to it, we ſuppoſe to be the external Air, or the frequent Emerſion of the Part in cold Water, as was that unhappy Woman's Caſe we related before: Now no ſooner was ſome Part of it coagulated and fixed underneath the Integuments, but it formed itſelf a Cavity that was capable of containing it, till by the gradual Aſſemblage of Particles of the ſame Fluid, and perhaps ſome from the contiguous Fibres, its Bulk began to be conſiderably augmented; then it was that the Juice that continued to be ſupplied, was obliged to inſinuate itſelf into thoſe Spaces where it found the leaſt Reſiſtance, one Part of it directing its Courſe this Way, and another directly contrary. This was what formed thoſe Branches we have before taken notice of; which according to the ſeveral Inequalities of the Cavities it lodged itſelf in, muſt aſſume a Figure conformable to them; and as theſe were the laſt Parts that were ſupplied, no Wonder we obſerved them to be of a Texture ſo different from the Body of the cancerous Maſs, which was much more compact and cloſe. This Cloſeneſs and firm Coheſion of the Parts that compoſed the Body of the Maſs, was effected by its gradual Advances outwardly; for by this Means the Membranes became very much diſtended, which having an elaſtic Power, muſt neceſſarily compreſs the Maſs with a Force almoſt equal to that which oppoſed them; this being ſo, as the Membranes and Maſs continued to act on each other, the Contiguity of the ſolid Parts of the cancerous Subſtance muſt become much greater; upon which Account, thoſe Parts that were more fluid, not being qualified for uniting themſelves with the other Parts, were, as it were, expreſſed by them, and obliged to collect themſelves in Cavities in that Part of the Maſs where there was the leaſt Compreſſure. This Advance of the Formation of the Cancer, as it is agreeable to the Structure of the Part, and Nature of that Juice which we conceive ſolely contributed to it, muſt be much more reaſonable than to ſuppoſe (according to Mr. *Gendron)* that Cancers are nothing more than a Change of the nervous glandulous Parts, and the lymphatic Veſſels, into an uniform, hard, cloſe, indiſſoluble Subſtance, capable of increaſing, and being ulcerated; for we can never reaſonably imagine, thoſe Parts of themſelves can be ſufficient to occaſion Cancers of ſuch a conſiderable Bulk as are ſometimes obſerved. *Vide Salmuth. Obſ. Cent.* 2. *Obſ.* 33. Beſide this, the Sinking of the Pipes, and cloſe Union, we cannot conceive that a Cancer of ſuch a prodigious Bulk could be formed in this Part, by a Diſorder of any Glands, becauſe there are none that are capable of receiving ſuch an Alteration, neither were the Parts that encompaſs it diſordered or diſcompoſed, any more than one might reaſonably expect from the Compreſſure of ſuch a prodigious compact Subſtance: We never yet ſaw any Subſtance, that to outward Appearance bore ſo great an Analogy to the cancerous Maſs we have been ſpeaking of, as the coagulated Lymph we have ſometimes ſeen cover the Surface of the grumous Part of the Blood underneath the *Serum*, after it has been ſettled in a Porringer, above the Thickneſs of a Crown-Piece: This concreted Juice, which takes its Place in the ſtagnated Fluid, according to its ſpecific Gravity, after it has been cleanſed from the red Parts of the Blood, that cohered to it, by waſhing it ſeveral Times in freſh Water, ſeemed to be of the ſame Subſtance with the cancerous Maſs, only of a little more looſe Texture; beſide this, the Alterations that were made on theſe two Subſtances, by putting them into various Sorts of Liquors, that were capable of having a conſiderable Effect on them, were equally alike the ſame. We cannot ſay but there ſeemed to be ſome Difference in the Colour, Compoſition, and Compactneſs of this cancerous Subſtance, and that which is generally obſerved in the glandulous Parts, which may very well be, becauſe one appeared to be one or more of the Juices purely coagulated, the Parts of which were compreſſed cloſe by the Elaſticity of the Integuments, and the other a Transformation of a coagulated Lymph and glandular Subſtance, which were intimately incorporated into a firm compact Maſs. We have ſeen a diſeaſed Foot where the Lymphatics have been diſcompoſed and broken by Abſceſſes, Ulcers, *&c.* of a long Continuance, that after the Leg has been amputated, though upon another Account, the Integuments of the Foot have been ſo thickened by an extravaſated lymphatic Juice coagulated, that a Piece cut off exactly reſembled a Part of the cancerous Subſtance of the Breaſt. *Platerius*, in his Obſervations, *lib.* 2. *pag.* 531. tells us of a Maiden 14 Years of Age, that on the ſpontaneous Opening of a Cancer of her left Breaſt, *primo affluxit albuminis Ovi inſtar, albus, viſcoſus, tenax, actu frigidus humor, quantitate menſuræ unius.* Whether this was actually a lymphatic Juice, grown ſomewhat viſcid, we cannot poſitively determine, though it ſeems reaſonable to ſuppoſe it. The ill Succeſs that is daily met with in attempting the Cure of Cancers, has given occaſion for ſome Perſons to believe, that a Depravation of the Juices of the Body is always their Concomitant; and that their Cure will be impoſſible, till the Juices are rectified. Now according to what we have advanced, the Cauſe of the Rebelliouſneſs of Cancers muſt be confined to the Cancers themſelves; and this ſeems to be confirmed by an Obſervation, that ſeveral Perſons that have undergone the Extirpation of Cancers, have been perfectly cured only by the Uſe of external Applications, and continued well during Life, without making uſe of any inward Means: Add to this, that Cancers are oftentimes formed during a State of Health; ſo likewiſe thoſe that do not perform the Operation with that Exactneſs as is neceſſary, and ſuffer any Part of the cancerous Maſs to remain behind, notwithſtanding all their Internals, to recover the degenerate State of the Fluids, as they imagine, muſt ſeldom or never expect to be ſucceſsful in their Attempts. As the Lividity and Ulceration of a Cancer chiefly led the Antients to a Belief, that aduſt Blood, Melancholy, *&c.* were the real Cauſes of Cancers; ſo the Moderns, upon the ſame Account, have aſſigned a corroſive Acid to be the only Cauſe: But to prove that the Lividity, without the Operation of an Acid, may be accounted for from the gradual Increaſe of the Cancer, we ſhall take notice, that as the Maſs continues to enlarge itſelf every Way, it muſt conſequently, by Degrees, compreſs thoſe Parts that are contiguous to its Sides: Upon this Account, as the Integuments of the Body in that Part are the only Parts that are incapable of reſiſting the oppoſing Force, they muſt ſuffer a very great Diſtention: By this Means the ſmall Branches of the Veſſels, that are extended on the Surface of the Part, muſt be very much diſcompoſed, and their Sides being obliged to be almoſt contiguous, the Blood muſt neceſſarily ſtagnate in them, and ſo occaſion that livid Colour that is obſerved: This will ſtill have a greater Appearance of Truth, if we do but take notice that the Lividity is always obſerved to be here, where the Integuments and Veſſels ſuffer the greateſt Compreſſure: As to the Ulceration, it is generally effected a little after the Patient is ſenſible of a troubleſome Itching in the moſt prominent Part of it; but this never happens till the cancerous Maſs is increaſed to a very great Degree, and the Membranes themſelves become incapable of any farther Extention. The Sleekneſs, Shining, and extraordinary Thinneſs that is obſerved where the Eruption begins, is ſufficient to prove this. Now, no ſooner is the Skin divided, but the Air has an Opportunity of diſplaying its ill Effects on that Part of the Subſtance that is thus diveſted; and as this Diviſion or Ulceration increaſes, the Sides of the Integuments that firmly adhere to the outward Parts of the cancerous Subſtance, having ſuffered ſuch a prodigious Diſtention, by their own proper Power gradually endeavour to recover their former contracted State (for they have a Faculty of Reſtitution, as they are elaſtic Bodies). Upon this Account thoſe external Parts of the Subſtance, to which the Edges of the Integuments were united after their Diviſion, muſt be neceſſarily drawn outward, and occaſion thoſe extraverted Lips that are always obſerved in theſe Caſes. We ſhall conclude theſe Remarks with an Account how, from a mechanical Diſpoſition of the Parts, the Juice that was diſengaged from its Veſſels after the Maſs became of a conſiderable Bulk, was more viſcid and apt to coagulate; this requires us to conſider the Compreſſure the Veſſels, muſt undergo by a Subſtance of ſo conſiderable a Bigneſs. Now it is certain, if the Diameter of the Branch of any Artery, be at any Time conſiderably leſſened, it immediately becomes qualified for receiving the moſt viſcid Matter the Blood can ſupply; upon which Account we may reaſonably ſuppoſe, the Juice the lymphatic Veſſels receive from the ſame Branch will partake of a greater Viſcidity than uſual: Beſides this, a very large Quantity muſt be neceſſarily diſcharged; for the ſlower the Motion of the Blood is, the more Lymph is ſeparated, more eſpecially if the Veins ſuffer a Compreſſure.

Observation XXXVII.

A Child betwixt 4 and 5 Years of Age, by ſome Accident received a Fall, by which the left Side of the Breaſt was very much contuſed. The Inconvenience that firſt attended it, was nothing more than an Uneaſineſs it occaſioned upon ſome particular Motions of the Body. After ſome Time the Child began to be ſeized with a Cough, which daily increaſed, till a great deal of purulent Matter was almoſt continually caſt up; during the Continuance of which, it breathed with a great deal of Difficulty, its Belly ſwelled, it became wonderfully emaciated, and at the End of about 5 Months died. The Body being laid on the Table, in order to be diſſected, a Part of the Integuments of the left Side of the Breaſt appeared diſcoloured; after the ſame Manner as though there was a Quantity of extravaſated Blood lodged betwixt them: No ſooner were theſe divided, and the *Sternum* with the Cartilages raiſed, but the left Lobe of the Lungs appeared ſo prodigiouſly large, that it filled much the greater Part of the Capacity of the Breaſt. In this Lobe there was a very great Quantity of purulent Matter contained, and a very large Ulceration on that Part over which the Blow was received. The Part of this Lobe, that before was contiguous to the *Pericardium*, was now extended quite over it, and firmly united to it. The *Pericardium* itſelf was grown perfectly cartilaginous, in which there was as much Water as it was capable of containing. The right Auricle and Ventricle of the Heart were wonderfully enlarged, as likewiſe the *Arteria Pulmonaris*. There was about four Ounces of diſcoloured Serum lodged in the Diaphragm. We proſecuted the Examination of the Parts, but found nothing more that was remarkable, except the Glands of the Meſentery, which were extremely enlarged, and grown perfectly ſcirrhous. It is moſt certain, that this alone was ſufficient to occaſion a Conſumption, becauſe it muſt unavoidably cut off all Manner of Communication of the Child with the Blood. There might have been probably ſome other remarkable Phænomena in the Body of this Child; but the ſhort Time that is allotted for making an Enquiry into the Parts on ſuch Occaſions, does not give an Opportunity of examining all the Parts with that Scrutiny as is neceſſary.

REMARKS.

IT is certain there is nothing of greater Neceſſity then a regular Reſpiration, in order to maintain the Body in a State of Health; and whenever a Perſon is ſo unhappy as to have this diſordered, he is ſoon ſenſible of ſeveral troubleſome Inconveniences. Now there are ſome Cauſes that muſt conſpire to render this Reſpiration agreeable and natural; as a ſufficient Enlargement of the Capacity of the Breaſt, a convenient Weight and Elaſticity of the Air, a good Diſpoſition of the Lungs, a proper Conſiſtence of the Blood, and its regular Motion. We ſhall not particularly examine all theſe Points, but only take notice how ſuch a Diſcompoſure of the Lungs, or one of its Lobes, as we have mentioned, cauſes an irregular Breathing, Stagnation of the Blood, *&c.* We muſt look upon the Lungs to be chiefly a Compoſure of little Bladders, fixed to the Extremities of the *Bronchi*, which in Inſpiration are very much diſtended; among theſe are diſtributed an Infinity of Branches of Blood-Veſſels, Nerves, and ſome Lymphatics. We cannot ſuppoſe, according to the Opinion of a very learned Phyſician, that the little Veſicles have a Power to contract or dilate themſelves; tho' we may reaſonably believe they have a very conſiderable Spring which aſſiſts them in recovering their depreſſed State, after they have ſuffered ſo great an Extenſion. Now, according to the Diſpoſition and Order of theſe Parts, it muſt neceſſarily happen that whatever is capable of weakening the elaſtic Force of the little Air Bladders, muſt neceſſarily diſpoſe the Blood to a Stagnation in that Part; for all the Time theſe little Cells remain extended, the Veſſels continue to be proportionably lengthened and enlarged, upon which Account they become very much diſtended with Blood; but this not meeting with its uſual Compreſſure from the Subſidence of the Veſicles, it ſtagnates there, and by its Corruption, cauſes an Alteration of the contiguous Parts. Now no ſooner is this corrupted Blood extravaſated, but by its Weight, it preſſes upon ſome of the little Air Bladders, and ſo effectually prevents their being expanded to their uſual Degree, from whence the Patient muſt neceſſarily become Aſthmatic: But it is certain this does not at all incommode the Action of thoſe Muſcles that ſerved for the Enlargement of the Breaſt. The Quantity of Air that paſſes the *Aſpera Arteria*, will after ſome Time be almoſt in the ſame Proportion to that which was received before; upon which account it muſt diſtend ſome of the *Veſiculæ* ſo much beyond their natural Degree, as to contain near as great a Quantity of Air as all of them would have done, had they retained their natural State. By this Means we may very well account for the Largeneſs of the left

Lobe, and particularly its being extended ſo far over the *Pericardium*. As to the Magnitude of the right Auricle and Ventricle, with the Enlargement of the Diameter of the *Arteria Pulmonaris*, it muſt unavoidably happen, becauſe the Celerity of the Motion of the Blood was very much interrupted; and now this being ſo, its Quantity muſt be very much encreaſed in thoſe Parts, which muſt augment its expanſive Force, and this being applied to the Sides of the containing Veſſels, it will neceſſarily diſtract them, or enlarge their Cavities.

OBSERVATION XXXVIII.

Of a Fiſtula in Ano.

A Man of about 40 Years of Age, by ſome Accident, received a Fall, by which the *Anus* and contiguous Parts were very much contuſed. About 3 Weeks after a ſmall Tumour diſcovered itſelf near the Verge of the *Anus*, which became very troubleſome to him, by reaſon of the Pain and perpetual Itching it was attended with; which in a few Days was ſucceeded by a *Teneſmus*. The Tumour was opened by Inciſion, and a Quantity of viſcous undigeſted Matter diſcharged itſelf: After this the Abſceſs was filled with dry Doſſils, over which was applied a Plaiſter with convenient Compreſs and Bandage. The next Day the Dreſſings being removed, a *Sinus* was diſcovered, which paſt about 3 Inches high, and penetrated the Inteſtine. The Patient being made ſenſible of it, the Neceſſity of laying it open was too evident. This being complied with, the Operation was thus performed: The Patient was placed on the Side of a Bed, with his Thighs divaricated, a Servant being on each Side to be ſerviceable in keeping aſunder the Buttocks; then the Surgeon paſſed a pliable Probe through the Fiſtula into the Inteſtine, and having introduced his fore Finger into the *Anus*, engaged the End of the Probe, and drew it outward through the *Anus*; after this he brought the Ends together, and drawing the Fleſh and Inteſtine to him, he, with one Snip of his Probe Sciſſors, divided the Fiſtula. The Wound was filled with Doſſils, dipped in a good Digeſtive, which was this. ℞ *Terebinth. Venet.* ℥i. *Linim. Arcæi* ʒii. *m.* The Doſſils were ſo diſpoſed, that the Medicine had its Effect equally on all Sides. The better to remove the Calloſity and excite a ſpeedy Suppuration;

ration, over theſe were applied Pledgets armed with more of the Digeſtive, with a Plaiſter and a triangular Compreſs, all which were kept on with the Bandage called the double T, the ſame which is uſed for ſecuring the Dreſſings of thoſe Perſons that are cut for the Stone. In about 5 Days Time the Wound being well digeſted, it was dreſſed with this ſarcotic Tincture. ℞ *Flor. Hyperici. Centaur. ana mſs. Myrrhæ, Aloes, ana* ʒſs. *S. V. q. ſ.* In this warmed there were ſoft Doſſils dipped and introduced, over which was applied Plaiſter, Compreſs, and Bandage, as before. This Method of Dreſſing was continued about 3 Weeks, (endeavouring as much as poſſible to dreſs immediately after every Stool) in which Time the Wound was ſufficiently incarned, and in a Week more it was perfectly cicatriſed with *Ung. Deſiccat. Rub.*

REMARKS.

THESE Sort of Fiſtulas are more frequently cauſed by ſome Fall, Blow, or any Thing that violently contuſes or compreſſes the Part, than by any other Means. Moſt of thoſe that we have ſeen, have been procured by Perſons accuſtoming themſelves to ride long Journeys. It is moſt certain, that whatever cauſes a Stagnation of the Blood in the Part (which it is very ſubject to, by reaſon of the Diſpoſition of its Veſſels) or diſtorts and diſcompoſes the true Order of the Fibres, ſo as effectually to prevent the regular Motion of the Juices, muſt neceſſarily produce an Abſceſs; and this it will effect, though the Matter never come to be ſuppurated, nor indeed can it well; for the Temperament of theſe Parts are ſuch as is ſcarce ſufficient to furniſh ſuch a Degree of Warmth to actuate the ſtagnated Fluid, as to cauſe a kind Suppuration. From hence it is when we open theſe Swellings near the *Anus*, we find the Matter to be generally viſcid, and of an ill Colour; beſides this, the Quantity of Salts it abounds with, renders it corroſive, and ſo qualifies it for cauſing a Calloſity. If we endeavour in ſuch Caſes as theſe are to promote Maturation, by the Application of Cataplaſms that conſiſt of warm Ingredients, we do not find that they communicate ſuch a ſufficient Degree of Motion to thoſe Particles that ſhould engage one another, as to cauſe a ſubtile and active Putrefaction; but, on the contrary, if they are moiſt and juicy, it diſpoſes the Matter to a ſlow, ſaline, and mucid Corruption. It is no hard Matter to conceive that if the Juices are extravaſated in ſuch a ſoft fungous Part, they will take an Opportunity of aſſembling themſelves together, and lodge in ſome Place that is beſt qualified for receiving them, where they will continue till by the gradual Addition of freſh Matter, that Cavity they had formed begins to be uncapable of containing them: Then it is that Part of them ſolicite other Paſſages to empty themſelves into, till at length ſeveral *Sinus's* are formed, the Sides of which, by the ſaline Quality of the Matter, generally become callous in a ſhort Time: But this Calloſity is always more or leſs in proportion to the Time the Fiſtula has continued, and to the Quantity of Salts with which the Matter abounds; the Conſideration of which may ſometimes ſave the Surgeon a great deal of unneceſſary Trouble, when he ſhall be about to continue his eſcarotic Applications longer than there is a Neceſſity. One of the chiefeſt Cautions that Authors have given us in the Cure of Fiſtulas in *Ano*, has been not to make a Diviſion of the Inteſtine, if it is penetrated above the *Sphincter Ani*: The Reaſon they alledged for it was, that the Retention of the Excrement afterward would be impoſſible. *Fiſtulæ quæ quatuor digitos penetrant, et per muſculos progrediuntur, curari non debent. Curando enim fit, ut alvus excrementa retinere non poſſit*, ſays *Sennertus**. But notwithſtanding there have been Perſons of ſuch Authority as has been ſufficient to recommend them that have all along been of the ſame Opinion; yet we muſt always chuſe rather to check an eſtabliſhed Notion, backed with the moſt refined Reaſon, than controul Matter of Fact. It is upon this Account, we ſhall take the Liberty to mention a Caſe, though it be ſuch as cannot be reconcileable to the Sentiments of our Predeceſſors. The Inſtance is of a Gentleman that had a Fiſtula that penetrated almoſt four Inches up the Inteſtine, that was laid open by Ligature, and ſucceſsfully cured, there being no ſuch Inconvenience attending it as ſome Perſons might have thought they had Authority to fear. After the Probe had been paſt along the Fiſtula till its End came through the Perforation of the Inteſtine, the Surgeon was obliged to make Uſe of a Pair of Forceps to engage it and draw it out, the Finger not being ſufficient to effect it in this Caſe. The *Teneſmus* which afflicted the Patient, the Hiſtory of whoſe Cure we juſt now related at large, was probably cauſed by the acrimonious Particles of the Matter, which vellicating the membranous Parts, ſolicited the Patient to go to Stool without any real Neceſſity. This ſeems to be evident enough; for on the Diſcharge of the Matter, this troubleſome Accident ceaſed.

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* Fiſtulas four Fingers Breadth deep, and which paſs through the Muſcles, ought not to be cured: For by curing them, the Belly is rendered incapable of retaining the Excrements.

It is to be obſerved, that the *Sphincter Ani* hangs over the Extremity of the *Rectum* a Finger's Breadth, ſo that in the Operation if the Inciſion be not made above the *Sphincter*, there is always about an Inch more of this Muſcle cut than of the *Rectum*.

O B-

Observation XXXIX.

A Man about 34 Years of Age, of a very ill Habit of Body, had been for a long Time incommoded in his Buſineſs, by Reaſon of a very large Ulcer upon one of his Legs: He had applied himſelf to various Perſons for Cure, and confined himſelf for ſome Months to a Method preſcribed him by one of his Surgeons, which chiefly conſiſted of mercurial Drugs and a dietetic Drink. The Ulcer was ſordid, and the Edges of it of a very ill Colour at the Commencement of this Method; but by obliging the Patient to deſiſt from Walking as much as poſſible, and Dreſſing the Ulcer with *Mundific. Paracel.* to which was added, a little *Pul. Scammonii*, it was in four or five Days Time very well deterged. After this it was brought into a very narrow Compaſs by *Ung. Baſilic.* and

Præcip. The Sore looked very well, would have perſuaded one it would have healed, and but little Matter diſcharged from it. Notwithſtanding all this, though the Attempt had been ſo ſucceſsful hitherto, it would not cicatriſe any farther; nor was it in the Power of the ſeveral Medicines that were applied to it to bring it into a leſs Compaſs than that of the Breadth of a Six-pence, or a little bigger. The Fault was at firſt laid upon the Patient, imagining he had not confined himſelf to the taking his Phyſic regularly, but given himſelf too great a Liberty in Eating and Drinking what had been improper: In ſhort, ſoon after, upon a little Cold the Patient had taken, the Colour of the Matter which diſcharged itſelf, began to be altered, and in a few Days it became very fœtid. About this Time ſeveral little Ulcerations broke out round the Sides of the Ulcer, which likewiſe looked very ill, and in a Week's Time it extended itſelf to the Breadth of almoſt the Palm of the Hand, and began to mortify. Upon this it was dreſſed with *Tinct.* of *Myrrh.* and *Egypt.* which in a few Days put a Stop to its Progreſs. The Sloughs being digeſted off, the Ulcer remained very ſordid, and diſcharged a very large Quantity of ſtinking Matter. This partaking of a corroſive Quality, eroded the Sides of it very conſiderably, enlarged it every Way, conſumed the Fleſh at the Bottom of it, and laid the Tendons of ſome of the Muſcles bare. Theſe were always dreſſed with a ſpirituous Medicine, to prevent their Corruption as much as poſſible: But in a Week's Time the greateſt Part of two of them was entirely corrupted, and eaſily came away, by taking hold of them with the Forceps. The Expence of Matter continued to be very great; the Patient was ſeized with a Looſeneſs, loſt his Appetite, and looked of a very ſtrange Colour; his Eyes appeared to be very dull and heavy; his Face ſeemed to be livid, and his whole Body was very much emaciated. He continued in this Condition about ten Days, and then expired. On Diſſection the moſt remarkable Thing that offered itſelf was his Spleen, which was of a prodigious Bigneſs, and of a blackiſh Colour.

RE-

REMARKS.

ULCERA *crurum plerumque difficilia curatu ſunt, imprimis ſi et lienis vitio foveantur; tum enim craſſi et melancolici humores ad ulcus affluentes ejus curationem impediunt**, ſays *Sennertus, Lib.* v. *Part* 2. *Page* 149. *Hippocrates* likewiſe takes notice, that thoſe Perſons that have large Spleens (*Lienoſi*) are very ſubject to Ulcers on their Legs that are of difficult Cure. Such was the Caſe of a Man we ſaw that died of a gangrened Ulcer on his Leg, in whom the Spleen was found to be ſo large, that when taken out of the Body, it weighed five Pounds four Ounces. We have ſeen a Man of 35 Years of Age, who for a conſiderable Time had laboured under an *Aſcites*, that had a very ſordid Ulcer on each Leg, which could hardly be kept from mortifying, though the moſt proper Applications were made Uſe of: Beſide this, there were abundance of cuticular Eruptions that diſcharged the Seroſity in very large Quantities, and a great many blackiſh Spots that were interſperſed all over the Parts. This Man's Countenance was very much like that mentioned before; though it is always ſomewhat remarkable in hydropic Perſons, that the chief Alteration obſervable after Death in the *Viſcera*, was in the Liver and Spleen, both of which were very much enlarged, and grown ſcirrhous. *Hippocrates, Epidem.* 7. mentions one or two Caſes that are ſimilar to what we have related.

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* Ulcers of the Legs are often difficult to cure, eſpecially if they are nouriſhed by a diſtempered Spleen; for then the thick and melancholy Humours flowing to the Sore, hinder its Healing.

The ſame Author ſays, That they are troubled with bad Gums and ſtinking Breaths, who have large Spleens; but they who having large Spleens, are ſubject to bleed, and yet have no ill Smell in their Mouths, are troubled with bad Ulcers in their Legs, and black Spots.

It is an Obſervation of ſome Phyſicians, that thoſe that inhabit moiſt and fenny Places have large Spleens. *Wepfer* (as cited by *Diemerbroeck*) found a Spleen in the Body of a Noblewoman, that exceeded five Hands breadth in Length, four in Breadth, and one and a half in Thickneſs, and weighed about ſix common Pounds. *Cabrolius* makes mention of one that weighed five Pounds; and *Skenkius* relates out of *Gamerus*, the Story of one that weighed 23 Pounds.

Le Clerc obſerves, that *Hippocrates* cauteriſed the Breaſt and Back of thoſe Perſons whoſe Spleen was over-grown, as well as thoſe that were pthiſical. The Inſtruments he made Uſe of for this End, were ſometimes red hot Irons, ſometimes Spindles of Box ſteeped in boiled Oil, and ſometimes a Sort of Muſhrooms, and likewiſe what he called *Linum Crudum.*

Observation XL.

A Man of about 32 Years of Age, of an unhealthful Conſtitution of Body, and one that for a conſiderable Time had been attended with an Aſthma, applied himſelf to a Surgeon for Advice concerning a Swelling on the left Side of the lower *Vertebræ* of the Back; which he ſaid he began to be ſenſible of about 6 Weeks before. The Tumour was at this Time about the Bigneſs of one's Fiſt, not at all diſcoloured, pretty hard, and almoſt altogether exempt from Pain. The Surgeon ſuppoſed the Matter was contained in a Cyſt, and judged it to be atheromatous: He was of Opinion to proceed to the chirurgical Part of the Cure immediately, becauſe in ſuch Tumours, and in ſuch a Part, it is not at all adviſeable to wait for a Suppuration; for beſides the Hazard there is in effecting it, the Diſtention of the *Pus* oftentimes

times corrupts the contiguous Parts, and proves of very ill Conſequence. It was upon this Account he made a crucial Inciſion of the Integuments the very next Day following, and removed the greateſt Part of the Cyſt, with its contained Matter, which was of a whitiſh Colour, and a pretty unequal Conſiſtence. The firſt Dreſſing conſiſted only of dry Doſſils to keep aſunder the divided Lips, and to abſorb the Matter; over which was applied Plaiſter, Compreſs, and Bandage, which was adapted to the Part. The next Day it was dreſſed with a Digeſtive, which was continued about a Week, in hopes it might conſume the remaining Part of the Cyſt, which was united to the contiguous Parts by ſome Filaments ſo ſtrongly, that it could not be drawn away by the Forceps. The Digeſtive procured a ſpeedy and copious Suppuration, but it did not effectually anſwer the Deſign of its Continuance. It was about this Time that the Bottom

tom of the Abſceſs began to fill with a looſe fungous Fleſh, Part of which ſeemed to proceed from the remaining Part of the Cyſt; but this was at once conſumed by the Application of an eſcharotic Powder; and no ſooner was the Slough ſeparated, but the Abſceſs looked very clean, and in a good Condition. After this it was dreſſed with a vulnerary Decoction, to which was added a little *Mel. Egypt.* By this Means in a Fortnight it appeared to be well incarned; but the Matter continued to diſcharge in a very large Quantity. The Patient was adviſed to confine himſelf to the drinking a traumatic Decoction he was ordered, to rectify the degenerate State of the Juices, leſſen the Quantity of Matter, and diſpoſe the Part to heal; his Diet was Meat of eaſy Digeſtion once a Day, at other Times Biſcuit with Raiſins, or ſometimes Butter. After ſome Time he effectually laid aſide the Uſe of Malt Drink, and wholly confined himſelf to his vulnerary Decoction. He thought he was obliged to obſerve the Rules that were preſcribed him, even to the niceſt Particular, and omit nothing that might contribute to a happy Recovery; but notwithſtanding this, all the Means made uſe of proved to be ineffectual; the Quantity of Matter did not at all leſſen, but formed a *Sinus*, which could be traced to the acute Proceſs of one of the *Vertebræ*: There was an Injection made uſe of, which was continued for ſome time; but as large a Quantity of Matter ſtill continuing to diſcharge, the Patient became emaciated to a very great Degree, ſo that he was obliged to be confined to his Bed, where after he had continued about 6 Weeks, he was ſeized with a Looſeneſs, made purulent Water, his Feet and Legs ſwelled, and then he expired. On Diſſection, two of the *Vertebræ* were diſcovered to be carious; the Proceſſes of which were ſo rotten, that they might be rubbed to Pieces with the

Fingers; the *Sinus* was traced, and found to penetrate into the left Kidney, a great Part of which was conſumed by an Ulceration; there was about a Pint of Water lodged on the *Diaphragma*, the Heart was very looſe and flaccid, and the Lungs were of a livid Colour.

REMARKS.

THE Prognoſtics the Antients made of the Danger that Abſceſſes near the *Vertebræ* were attended with, have been all along ſufficiently confirmed by the Experience of later Ages. The chief Reaſon they gave for foretelling ſuch an unhappy Event, had reſpect to the Nobility of the Part affected, it being the Seat of the ſpinal Marrow, and a Multitude of Nerves which were detached from it. There were ſeveral other Parts that they diſtinguiſhed by the ſame Character of being more noble than the reſt, as the Brain, Heart, *&c.* and in general, any Part, whoſe Uſe they thought was moſt immediately ſerviceable for the Continuation of Life. There are certainly ſome Circumſtances which relate to the Structure of this Part, that diſpoſes it to be attended with dangerous Accidents, whenever a Perſon is ſo unhappy as to have it affected after ſuch a Manner as we have taken notice of: Beſide this, the Matter that is contained in theſe Abſceſſes, can hardly ever be brought to an active and kind Suppuration: Whether this proceeds from a Deficiency of Heat in the Part, that being always neceſſary in ſuch Caſes, to communicate ſuch a certain Degree of Activity to the Particles of the Matter, more eſpecially thoſe that are ſaline, as may diſpoſe them to engage with one another, and maintain a perpetual Intercourſe with the other Parts; or whether it proceeds from ſuch a Diſpoſition of its Parts, as altogether unqualifies it for ſuch an Engagement, we ſhall not determine; though it is reaſonable to ſuppoſe, that both in ſome Meaſure contribute to it. It is probable, the Abſceſs was occaſioned by a too great Viſcidity of the Juices, which by that Means became diſpoſed to ſtagnate; and this obſtructing the Paſſages of that which came behind them, occaſioned a prodigious Diſtention of the Veſſels, till at length they were obliged to diſengage themſelves from them, and lodge themſelves in a Cavity, that was capable of containing them, where they became intimately incorporated. Now as this increaſes in Bulk by the Addition of freſh Matter, by its Continuance it begins to grow more viſcid, and aſſumes a greater Degree of Solidity; by this Means it becomes the better qualified for diſtorting and diſcompoſing the true Order of the Fibres, which formed the Sides of the Cavity it lodged itſelf in; this miſplacing of the Fibres will neceſſarily procure a larger Acceſſion of Juice than ordinarily, whereby they will enlarge and diſtend themſelves till they ſhoot out other ſmaller Branches, which engaging themſelves, and enfolding within each other, they form a Sort of membranous Bag, which is faſhioned into various Figures, according to the reſpective Cavities the ſtagnated Matter is lodged in. There are other peculiar Tumours that are continued in Cyſts, beſide what we have taken notice of, the Subſtance which compoſes them being of a very different Colour and Conſiſtence; but theſe Alterations proceed from nothing more than the Modification the Parts of it receive by its being differently mixed with other Juices. We never had the Opportunity of ſeeing more than two of theſe Caſes, beſide what has been related. The firſt was a Boy that had two Abſceſſes on his Loins, one on each Side the *Vertebræ*; but by the Care of a ſkilful Surgeon, he recovered, and is living at this Time, though a Part of one of the Kidneys might be eaſily diſcovered, for ſeveral Weeks after the Abſceſs on the ſame Side was laid open. The other was a young Fellow who had ſeveral Abſceſſes near the *Vertebræ* of the Back, ſome of which being opened, ended in incurable ſinous Ulcers, which diſcharged ſo large Quantities of Matter, that the Patient died emaciated to the laſt Degree. We could not diſcover the *Vertebræ* to be carious in this Patient, nor could we ever find out the Termination of the *Sinuſſes*, ſome imagining they penetrated into the Cavity of the Breaſt; others being of Opinion (which was moſt probable) that ſeveral of the *Sinuſſes* had Communication one with another, and that was the Reaſon they were traced with ſo great Difficulty. It is to be obſerved, that we do not give the Impoſtumations that happen near the *Vertebræ* on the Termination of a Diſeaſe, or ſuch like, ſo ill a Character, as thoſe where the Matter is a long Time in congeſting, and remains cold and heavy in the Part, and only tends to a ſlow mucid Corruption; the former of which are for the moſt Part free from Danger, being attended with Heat, Redneſs, Tenſion and pulſific Pains, all which are Signs of a ſpeedy Suppuration.

OBSERVATION XLI.

A Man of about 40 Years of Age, in an Engagement, received a Wound in the right *Hypochondrium*. A Surgeon being called ſome Time after, found it to be ſeveral Inches in Length, with a Part of the *Omentum* hanging out of it, which was very much diſcoloured, the Lips of the Wound being turgid and inflamed. The Air, which at that Time was pretty cold, had had a free Acceſs to the Wound, which cauſing an Inflammation of it, ſo ſtraitened it as to preſs on the prolapſed Part of the *Omentum* equally on all Sides. This Strangulation was likewiſe increaſed, when the Juices became ſtagnated, which will immediately happen in a Part that is ſo diſpoſed to receive the Impreſſions of the Air. A Ligature was immediately made on the Caul, a little above that Part that had received the Alteration, which was cut off, the Ends of the Thread being left hanging out of the Wound. After this the Surgeon was of Opinion to perform the *Gaſtroraphia*, notwithſtanding the Inflammation the Parts were attended with. In order to effect this commodiouſly, the Artiſt introduces the Fore Finger of his Left Hand into the Wound, and a little raiſes one of its Sides; then he paſſes his crooked Needle betwixt his Finger and the *Peritonæum*, and pierces the Integuments from within outward: He afterwards takes another Needle, which is armed with the ſame Thread with the former, and pierces the *Peritonæum* and Muſcles as before. If there is no Neceſſity of making any more Stitches, a Servant applies his Fingers to each Side of the Wound, and moderately compreſſes them, till he obliges them to be contiguous. Then the Surgeon makes his Knot to retain them in that Poſture. The Suture being made, the

Wound was dreſſed with Pledgets, armed with a proper Balſam, over which was applied convenient Compreſs and Bandage. The Inflammation ceaſed, and the Parts were diſpoſed to unite as ſoon as ever the Wound began to digeſt, whcih was the ſecond Dreſſing; though before, the extraordinary Tenſion of the Parts gave Occaſion to fear the Suture would not be ſufficient to retain the Lips together. In ſhort, there was no ill Accident attended it afterwards; but it united firmly in leſs than a Fortnight, and the Stitches being cut out, the Patient became perfectly well in three Weeks Time.

REMARKS.

GALEN in *Lib.* 6. *Mebod. medend. contra Theſſalium*, gives us the firſt Hint of making a Ligature on the Caul before we would take off the corrupted Part; which Method has been continued to be mentioned by ſome of our moſt valuable Writers, only with this Difference, that ſome of them are for applying an actual Cautery after the Abciſſion, which is to be made about an Inch from the Ligature. Of this Opinion is *Johannes de Vigo, Cap.* 11. *de Vulner Ventris*, who recommends it as a very ſafe Way. However, there ſeems to be an abſolute Neceſſity for the making a Ligature on it, before any Part of it be cut off, leſt the Blood diſcharge itſelf into the Capacity of the Belly, and there corrupt, and ſo procure a Train of miſchievous Accidents; as it happened in that Perſon whoſe Caſe is related by *Foreſtus* in his *Obſ. Chirur. Lib.* 6. *Page* 23, 24, *&c.* where he tells us, An unskilful young Surgeon inconſiderately cut off the *Omentum*, that was fallen through the Wound, without making a Ligature on it; from whence it was attended with an Effuſion of Blood, a Corruption of the *Omentum*, a Fever, and other troubleſome Symptoms. *Hippocrates* ſeemed to be very ſenſible of the Inconveniences that muſt neceſſarily attend the expoſing tho the *Omentum* to the Air, by his 58th *Aphoriſm*, where he ſays, *Si omentum exciderit, neceſſario computreſcit.* Now, in order to underſtand how this Part becomes diſpoſed to corrupt ſoon after the Air has had an Opportunity of exerting its Influence upon it, we muſt obſerve that it is of an exceeding looſe Texture, watered with Abundance of Juices, and chiefly a Compoſure of Veſicles, filled with a thick oily Subſtance. Now no ſooner is ſuch a Part expoſed to the Air, but it will immediately coagulate and harden its oily Juice, whoſe Fluidity is only preſerved by the moderate Degree of Warmth the contiguous Parts communicate to it: Beſide this, it will condenſe and fix the Blood and Lympha in its Veſſels, they not being clothed with any Thing ſufficient to defend them from its Action. By this Means it will immediately appear cold and lifeleſs, nor is it in a Condition to be animated by any active Particles, could they be tranſmitted to it. Add to this, that the very Continuance of any Part of the *Omentum* without the Wound, will very much contribute to the Stagnation of the Blood; for during the Time it is in ſuch a Poſture, the venal Fluid will be obliged to remount againſt its own Weight; which it cannot well do, becauſe that in the Arteries will loſe ſo much of its Velocity, as not to be able to communicate a ſufficient Degree of Motion to it. From hence its Stagnation will gradually begin to commence, which in a little Time will be ſucceeded by a Mortification. One of the worſt Accidents that attend theſe Sort of Wounds, is the violent Tenſion they are ſubject to, upon the indiſcreet Application of improper Medicines, or Miſcarriage of the Patient. But whenever this happens, it may be proper to make uſe of ſome emollient and reſolutive Applications, which by ſoftening the Fibres, unqualify them for making an Effort for diſuniting themſelves.

Galen de uſu part. Cap. 9. informs us of a certain Gladiator, who being wounded in the Belly, had the greateſt Part of the Caul cut off, notwithſtanding which he became well. There was a very remarkable Circumſtance, which our Author takes notice of in this Caſe; which was, that he was ſo much incommoded by the external Cold, that he was obliged to wear Woollen upon his Belly daily. But notwithſtanding this, *Riolan* affirms from his own Obſervation, that ſuch as have had the Caul cut out, have found no prejudice by it to their Concoction.

FINIS.

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